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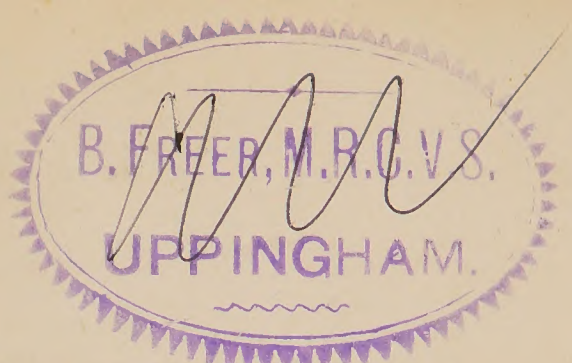
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THE
VETERINARY JOURNAL

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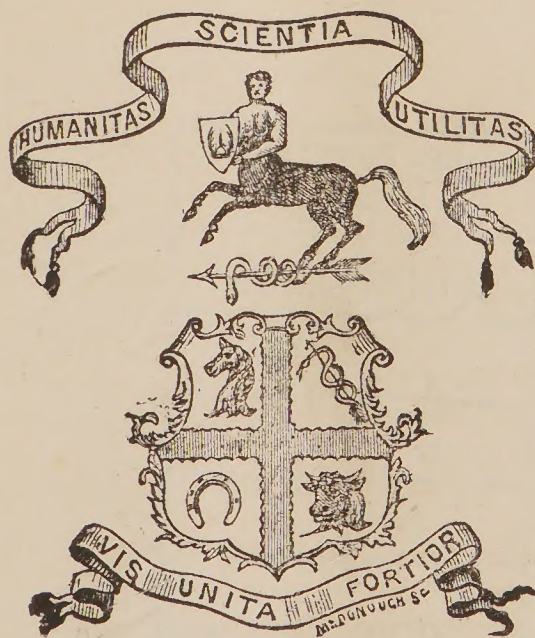
Annals of Comparative Pathology.

EDITED BY

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THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

JANUARY, 1883.

ACTINOMYKOSIS: A NEW INFECTIOUS DISEASE OF ANIMALS AND MANKIND.*

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR.

THE progress of pathological research is continually demonstrating the mighty part played by microscopic vegetable organisms in the production of disease in plants and animals, generally leading to their destruction, and with more or less rapidity. The feeblest and smallest, as well as the largest and most powerful, are alike exposed to the ravages of these invading, relentless foes, whose attack is all the more destructive because it nearly always cannot be detected at its onset; and their extreme minuteness and tenuity, as well as their insidious and obscure manner of operating, are also so many barriers to timely recognition and protective measures against their assaults.

The immense destruction caused by minute parasitic fungi upon cereal and other useful plants, is only too often experienced by agriculturists and others. The mildew of the wheat, for instance, arises from the attack of a small fungus—the *Puccinia graminis*. When this little pest becomes multiplied to a great extent, it gives rise to most serious consequences. The disease called "Smut," attacking the flower of the wheat, is the produce of a minute parasite—the *Uredo segetum*; while the "Bunt," or disease involving the seed itself, is caused by another parasitic microscopical fungus—the *Uredo foetida*—which, as soon as it

* A portion of this paper was read, and morbid specimens, drawings, and microscopical preparations exhibited, at the meeting of the Southern Counties Veterinary Medical Association, on October 30th, 1882.

enters the grain, completely fills it, and replaces the flour by a black, disgusting, fetid powder, consisting of minute balls, four millions of which may exist in a single grain. The disease which attacks rye and other grain, called "Ergot" or "Cock's-spur," is produced by a like minute fungus—the *Spermædia clavus*; that attacking the potato—the *Botrytis infestus*; that destroying the different species of *Allium*, as the onion—*Botrytis destructor*; and many other destroying fungi, whose existence in plants can only be realised by their ravages, and their presence by means of the microscope, are known to those who have made them a special study.

The lowest, as well as the highest animals, are similarly the victims of these almost impalpable organisms. There is not a creature, probably, which may not afford scope for their baneful action. The disease called "Muscardine," in the silkworm, is produced by the "balsoma" or *Botrytis Bassiana*, and several species of caterpillars are affected in the same way; indeed, some of these fungi of caterpillars completely transform the bodies of these into their own substance. Then we have the fungi which grow upon or within the bodies of man and wild and domesticated animals, and cause troublesome, very often serious, and only too frequently fatal disorders. The wonderful revelations which have been made by means of the microscope, lead us to believe that those diseases which are included in the group designated "zymotic," owe their production to vegetable germs; and other maladies not comprised in this class have already been discovered to be due to these microphytes—for instance, Anthrax, Tuberculosis, Swine-plague, Rabies, Fowl-cholera, Leprosy, etc.

Yearly the list of diseases evidently due to *Microbes*, or "germs"—as they are commonly designated—is added to; and whether these germs consist of simple forms, such as special *Micrococci* or *Bacilli*, or more complex organisms, yet by culture and inoculation-experiments their part in the pathogenesis of certain maladies can be no longer doubted.

Whether these fungi invade plants or animals—whether they attack the simplest or the most complex organisations—the tendency of their action is always the same—degeneration and disintegration.

The object of this paper is to bring to notice another addition to the list of microphytes which prove to be veritable scourges to animals, and are productive of loss to the community.

For the last two years, the pages of the VETERINARY JOURNAL have been more or less occupied with the descriptions and discussion of a disease chiefly affecting bovine animals, more particularly those of a juvenile age, and which has been by the majority of writers designated "Tubercular Stomatitis," evidently from the character of the lesions and its chiefly affecting the mouth; while by a few it has received other designations, and its tubercular nature has been denied.

The same malady has received some attention at other times among veterinary surgeons in this country, but nothing has been published as to its pathology.*

Though it is probable that two or more diseases have been included in this discussion, yet with regard to that which received the before-mentioned designation, there were some veterinary surgeons—myself included—who, for several reasons, were inclined to doubt its being allied to, or identical with, Tuberculosis; and as the question was one of some importance, from a sanitary and pathological point of view, an attempt was made to decide it by appealing to those practitioners who had the opportunity, to forward specimens of the disease to the Brown Institution for examination.

Several members of the profession obligingly complied with the request; but the only specimen which arrived in a satisfactory condition was the tongue of a steer forwarded in May last, by Mr. James, M.R.C.V.S., Thornbury, Gloucestershire. The animal from which the organ had been obtained was, as Mr. James subsequently informed me, one of five affected with this so-called Tubercular Stomatitis, the others having been successfully

* There are a few notes on what may have been this malady, by Professor Axe, in the *Veterinarian* for 1877, pp. 605, 759, but they are merely quotations, and throw no light whatever on the disease. Up to the present time, the views entertained with regard to it are fairly represented in the opinion of the late Professor of Cattle Pathology at the Royal Veterinary College, who, in the course of some remarks on what would appear to have been a case of this affection, and which was designated "Schirrus Tongue," states that "the causes of Schirrus are obscure, but they are evidently of a *constitutional nature*, as the disease is generally insidious in its attack, gradual in its development, and fatal in its consequences."

submitted to surgical treatment. The steer had not received much attention—the tongue having only been dressed a few times—as it was a two-year old animal, and the owner thought he would rather have it slaughtered before it lost condition.

The tongue was in good preservation when it reached the Brown Institution, and when I saw it an examination had been made of it by Dr. Roy, director of, and Mr. Garside, M.R.C.V.S., then veterinary surgeon to, that valuable establishment. The appearance of the organ was somewhat curious and very unusual, and it was evident—almost at a glance—that it was affected with something very different to Tuberculosis. In the first place, it appeared to be considerably increased in size, and in texture it was very dense; indeed, the term rigid might have been appropriately applied to it. A transverse section through its middle third exhibited the muscular tissue pale in colour, its fibres indistinct, and looking as if undergoing degeneration; while interspersed closely throughout the entire mass were myriads of small, light yellow, dense nodules, rather firm in consistence, for the most part perfectly distinct from each other, and varying in size from the dimensions of a pin's head to that of a millet seed or filbert. Here and there two or more of these nodules had evidently coalesced to form larger masses, and the section already mentioned had been made through a somewhat extensive patch, which looked as if in process of softening, and the tissues immediately surrounding it were ulcerating. This softening mass, which was somewhat caseous, might have been mistaken for tuberculous deposit; but to those who are familiar with the lesions of Tuberculosis, it would have been scarcely possible to make such a mistake in this instance, after a careful inspection of sections in different parts of the organ.

Mr. Garside had made the following notes with regard to it:

“The tongue weighed eleven pounds (5994 grammes). About seven inches from the tip it becomes suddenly enlarged. The enlargement extends to the fauces, and is hard and firm to the touch, resembling cartilage in consistence. Length 8 inches, depth 5 inches. The surface shows variously-sized ulcerations, not very deep, and looking as if punched out. In some parts the mucous membrane is purple in colour, mottled by the

presence of still darker spots, which look like blood extravasations. The thickening does not feel nodular, but uniform ; and it is evident that the mucous membrane is thickened by infiltration of the submucous tissue. On making a longitudinal section of the enlargement, it is seen to be pale in colour, inclining to a yellowish-red. Scattered throughout are a number of nodules, varying in size from that of a pin's head to a hazel nut. Some are isolated, others in groups of two and three. They project above the cut surface. They are white in colour, and their margins are generally well-defined. In some instances they are surrounded by a capsule of connective tissue. Although present throughout the whole of the section, they are far more numerous towards the surface of the tongue, being contained within a zone of an inch and a-half from the surface. They are of all shapes, but the smaller ones are mostly round. The nodules are also contained in the submucous tissues.

“In addition to these projecting nodules, are a number of variously-sized white patches, generally streaky, which look like hypertrophied intermuscular connective tissue. The nodules are also scattered throughout the muscular tissue. On the under surface of the tip of the tongue, there is seen through the mucous membrane a patch made up of yellowish nodules.”

Mr. Garside's microscopical examination of the nodules at first led him to consider them crystals—a mistake easily made.

If the disease affecting this tongue was not Tuberculosis, then the question arose, What was it? Mr. James, who had sent the specimen, had in his communications to the VETERINARY JOURNAL, spoken of it as a somewhat common, and certainly a very serious malady in his district, among calves and young bovine stock, though adult animals did not escape its ravages. It was, therefore, of great moment to discover its nature.

As I have already said, Mr. Garside, from the density of the nodules, at first thought they were crystals, and calcareous in composition, and accordingly tested them with acids, but he concluded they were not composed of lime salts.

With much care, and after the exercise of a considerable amount of patience, it was subsequently found by Dr. Roy and Mr. Garside that the nodules were found to offer a definite

structure under the microscope, and when the higher magnifying powers of the instrument were employed, the presence of a peculiar minute fungus was detected, the mycelium developing, or being arranged in, a novel manner, each nodule being mainly constituted by a cluster or conglomeration of fungi or fungus elements, differing in arrangement and appearance from anything hitherto noted among entophytes infesting animals.

This was recognised as the *Actinomyces*, a fungus which has been discovered in certain morbid conditions of mankind and animals in Germany and Italy.



FIG. 1.—A cluster of *Actinomyces* tufts in the centre of a stratum of cells.
From a nodule in the cow's tongue.

It now dawned upon me that we had to do with a particular disease, the pathology of which has only been elucidated within a few years, and which is referred to in the VETERINARY JOURNAL for January (p. 60, *Sarcoma in Oxen*) and April (p. 256, *A New Vegetable Parasite causing Disease in Cattle*), 1879.

Mr. James has quite recently, at my earnest solicitation, forwarded three additional specimens of the disease—portions of two heads, and a tongue. I shall notice the former first, as they are the most interesting and important, and give the clinical history of the cases, for which I am also indebted to Mr. James.

Actinomykosis : a New Infectious Disease.

The specimens were two bovines—a steer and a heifer—each about a year and a-half old. The heifer was first attacked about three months before. The symptoms were : swelling of the upper lip and nose, and the appearance of a “red place” about two or three inches from the anterior nares—this place resembling a *boil* on the human skin. Some dressing was sent, and this was applied two or three times a-week. Mr. James did not see the animal again for two or three weeks, when he was requested to inspect it again, as it was very much worse. He found the upper lip much more tumefied and very hard, and the disease extending up the nasal chambers, the little masses or “tubercles” being very characteristic. On his next visit he observed that the disorder had been checked, and it was kept in this condition for about a month. It then began to extend again, and all efforts to overcome it were fruitless. Dressings appeared to have no effect on it, and there was great difficulty experienced in properly syringing the nasal cavities. From this time the malady continued to gain ground, the growths developing so rapidly as almost to fill the nostrils. The animal was greatly distressed in breathing, throwing up its nose, and snorting and roaring in its efforts to respire. It was destroyed. Neither mouth or tongue was involved in this case.

A few weeks after the heifer became affected, the farmer requested Mr. James to see a steer as quickly as possible, as it had the same disease, and he was afraid his other stock would be involved, particularly the milch cows, in the “distemper.” On examination, Mr. James discovered the roof of the mouth to be the seat of the malady, the greater part of it being “abraded.” The nose did not appear to be implicated then, nor for some time afterwards. The disease yielded to treatment, and rapid progress was made towards recovery. But soon it attacked the upper lip and nose, precisely as in the other case, though not so seriously. This animal was killed at the same time as the heifer, the owner being afraid his cows would catch it.

These animals, with several more, had been sent away from the home farm to graze on some poor undrained land. The specimens, when they arrived in London, were found to have been much mutilated by the butcher. The nasal bones

had been removed from one head, and only the superior maxilla, pre-maxilla, turbinated, ethmoid, and palatine bones remained. The mucous membrane lining the nasal fossæ and covering the turbinated bones, was studded by various-sized, light-yellow, isolated little masses, like warts or small raspberries in outline. During life these nodular-looking bodies must have greatly obstructed the breathing. The only portions of the other head sent for inspection were the nose and the upper lip. The latter was much thickened and indurated, and small shot-like masses could be felt through the mucous membrane lining it.

The tongue specimen was from a two-year old steer. The anterior part of the organ, to an extent of five or six inches, was extremely indurated, and numbers of the yellow nodules, small in size, were scattered through the submucous and muscular tissues. This case was a very mild one of the disease.

A microscopical examination of the nodules from the mucous membrane of the nose, by Mr. Batt, M.R.C.V.S., the Brown Institution, revealed the existence of myriads of the vegetable organism designated *Actinomyces*, each nodule or mass being made up of a number of smaller nodules, these individually containing nests of felted fungi. Each cluster of the *Actinomyces* had the characteristic daisy-like outline and radiating lines springing from a somewhat dark centre, which will be hereafter alluded to, and which was such a marked feature in the specimens found in the first-described tongue.

These specimens, then, exhibited the same characteristic fungus elements and pathological features as the tongue, and leave no doubt whatever as to the nature of the malady which is reported to be so widely prevalent in Gloucestershire, and, from report, in other parts of England, as well as in Scotland and Ireland, and prove its non-identity with Tuberculosis.

The great importance and interest which attaches to this disease, have, therefore, induced me to bring it to the notice of the veterinary and medical professions in this country, as its nature has not hitherto been suspected, though by various names it has probably been known as a destructive disorder among cattle and other animals from time immemorial; and though its presence has not hitherto been signalised in our own species in these

islands, yet that it may not unfrequently occur there is every reason to believe, when we now know how prevalent it is among our cattle, and that cases affecting mankind have been recorded in Continental medical literature.

HISTORY.

As already stated, so far as the pathology of this malady is concerned, it is a new disease, as until its histological characters were discovered, we were in ignorance of its nature. For a very long period, and especially in Germany, it had been observed that the ox tribe was affected with a certain disease, or diseases, of the bones and soft tissues of the head, which received various popular names by agriculturists and dairy people, whose cattle were so frequently victims to it. In Germany the disease of the bones was known as "Ladendruck," "Ladengeschwulst," "Dicker backen;" "Krebsbacken," "Bäckel," "Kimbeule," "Kiefergeschwulst," "Knochenkrebs," "Knockenwurm," "Winddorn," etc.; while when the tongue or other soft tissues in the mouth were specially involved, the terms "Holzzunge" (wooden tongue), "Hohlgeschwulste," "Schlundbeulen," "Wurm," etc., were applied.

Among veterinarians in Germany, the disease of the bones was looked upon as Osteosarcoma, Spina Ventosa, bone Tuberculosis, Osteoporosis, Hyperostosis, etc., while the tongue affection was supposed to be Tuberculosis, chronic interstitial Glossitis, tongue degeneration, Sarcomatosis, etc., the affection in other soft tissues being considered either as lymphomatous, fibromatous, scrofulous, or scrofulo-tuberculous.

In Italy, where the disease appears to be very prevalent, especially in the plains of Ferrara and in the Maremme of Tuscany, it was popularly considered to be a kind of Glanders and Farcy of bovines, sometimes looked upon as tuberculous, and when affecting the tongue was named the *Mal del rospo* (*rospo*—toad), *Trutta* (thrush), or Tuberculosis of the tongue.

In this country, as already remarked, the disease undoubtedly exists, and in all probability widely and frequently; though its pathology has not hitherto been ascertained. Under the designation of Scrofula, Tuberculosis, Tubercular Stomatitis, Miliary Tubercle, Schirrus tongue, Glossitis, Osteosarcoma, Osteoporosis, and many other names, there is every reason to think that this

disease has been included in the descriptions of these various affections.

In 1877, Bollinger* drew attention to a disease of cattle which, he asserted, was not unfrequent among them, and which consisted in a kind of new-formation tumour, that appeared on the upper or lower jaw, in the alveoli of the molar teeth, or sprang from the spongy tissue of the bones, displaced the teeth, and in growing invaded and destroyed the healthy tissues,—bones, muscles, mucous membrane and skin, appearing externally, or in the mouth or palatine sinus. The bones, when macerated, looked like pumice-stone, modified through central osteoporosis and external hyperostosis. After some time the round, conglomerate, luxuriant growths generally became puriform or ichorous, and ulcerated, producing abscesses and fistulæ, and sometimes increased to the size of a child's head. The progress of the disease was gradual, and interfered with mastication when it had advanced to a certain stage; this led to emaciation, and to prevent loss from this cause the owners of the cattle generally had them destroyed before this stage was reached. In examining fresh tumours, Bollinger discovered (in three cases) amongst the dense connective tissue, conglomerate masses or nodules of various sizes, from that of a walnut to a hen's egg, of soft consistence, pale yellow colour, and moist appearance, which on section showed a turbid, whitish-yellow puriform contents; or the nodules were of a spongy texture, in the fine stroma of which were numerous spaces about the dimensions of a hemp-seed, containing a dull-yellow, thick, or cheesy-like substance. In scraping a section of an old or young nodule, this substance was easily removed. Microscopically, the tumours appeared to be composed for the greater part of old or embryo granulation tissue, which had a kind of sarcomatous structure, while the cheesy substance consisted of pus-corpuscles, granulation and granular cells, as well as fatty granular *detritus*; in addition, the latter contained innumerable, various-sized bodies, which were opaque, of a faint yellow tint, often somewhat mulberry-shaped in outline, and here and there encrusted with lime salts. This was recognised as a real fungus, but at first

* References will be found at the end of this paper, when treating of the literature of the subject.

no pathological importance was attached to its presence, and the disease was simply named "jaw-osteosarcoma."

Besides this noteworthy form, which appeared to have its origin in the invasion of the alveoli by the fungus, the tongue of the ox presented another form, proper to itself. Imbedded in the parenchyma of the organ, Bollinger found a greater or lesser number of nodular-looking bodies, the majority of which were as large as a millet or hemp-seed, and some as big as a cherry or walnut; many stood prominently from the surface of the mucous membrane. When fresh, they were mostly white or greyish-white, diaphanous, moist-looking, very soon becoming turbid or undergoing puriform softening, and vacating their connective tissue capsule. When these nodules were on the upper surface of the tongue, destruction of the mucous membrane, erosion, ulceration, and cicatrization took place; while in the parenchyma of the tongue, a secondary interstitial Glossitis became developed, when there was partial atrophy of the muscular fasciculi, and a marked enlargement and wood-like induration of the organ.

The disease, when in the jaws, was not uncommon in old cattle, developing itself in a few weeks, and was nearly always incurable; the animals would survive for a month, or even a year, until the difficulty of eating, because of the diseased jaw or enlarged tongue, produced emaciation and debility, and the animal was slaughtered. In the nodules of the tongue, as in the jaw, the microscopical fungus was constantly present.* That the tongue disease was not rare, was evidenced by the fact that in one year Bollinger had no fewer than six specimens sent to him from various parts of Bavaria; while in five preparations he had in spirit, he found the fungus. He not only discovered this fungus in the centre of the nodules, but also in the sub-maxillary lymphatic glands of the tongue, as well as in the tracheal lymphatic glands. He found these glands greatly enlarged, and studded with grey and dull-yellowish spongy nodules, in the interior of which he found immense numbers of the fungus. The fungus was likewise discovered in a series of new-formation tumours which cows are very liable to, in the

* These organisms had been observed for several years (1870) by Professor Hahn, of the Munich Veterinary School, but he had not attached sufficient importance to them.

pharynx and larynx, as well as in the mucous membrane of the stomach. In the two former situations, these tumours appear as polypi and submucous new formations, and these had received such names as Lymphoma, Throat-tumour, Fibroma, Tuberculosis, Scrofula, etc.* In all these tumours (ten of which he had preserved in spirits of wine), the section was always more or less of a spongy character, and when the puriform or cheesy matter contained in the numerous small interspaces of their structure was examined microscopically, enormous quantities of the same endophyte were found as had been discovered in the jaw tumours and the so-called "Wooden-tongue."

Besides all these, in the tumours of cattle which the German farmers and dairymen named "Throat-boils" (*Schlundbeulen*), and which appear in the vicinity of the parotid gland, larynx, and pharynx, and apparently have some relationship to the jaw tumours, the same nodules and organisms are found; they may be derived from the lymphatic glands in their neighbourhood. In a case of supposed Fibroid in the second compartment of a cow's stomach, the tumour being about the size of a man's fist and of a spongy nature, the fungus was found by Bollinger; as well as at the base of a gastric ulcer which was mistakenly supposed to be of a tuberculous character.

In fixing upon this endophyte as the cause of the disease, through its destructive nature, and its tendency to produce new-formation growths (in this respect resembling the *Chionophye Carteri*, which causes the "Madura-foot" of the natives of India), Bollinger makes some remarks on the fungus, which had been carefully studied by the professor of botany at the Munich Veterinary School, Dr. Harz, who obtained it from fresh specimens. The fungus found in the tumours from cattle, form globular drussy tufts, from 0,11 millimetre in diameter. The majority of these tufts are aggregated in mulberry-shaped masses of from 0,5 to 1 millimetre in diameter, and appear to the unaided eye as very minute dull-white granules. Very frequently the tufts are somewhat calcareous, and then it is difficult to make out their composition; it is the same when they have

* Bollinger notes that in some parts of North Germany, five per cent. of the cattle are affected with these throat tumours.

become altered by lying for some time in alcohol. By a slight pressure made upon it, the fungus tuft is considerably altered in appearance, and mostly assumes the shape of a spheroidal segment, wherein some of the organisms can be distinctly traced throughout. The latter commence at the pointed end of the mass, with a somewhat cone-shaped base-cell, which may possibly represent the non-apparent mycelium, and which bears a large number of short-stalked hyphens. The end of the hyphen shows the Gonidiæ, which are, like the hyphen itself, polymorphous, and of an oval, globular, or elongated form. From the expanded end of the Gonidiæ are developed a number of young shoots or sprigs, and from each Gonidium arises an individual; so that a number of Gonidiæ together give rise to a mulberry-shaped colony; and this is the usual form in which the clusters of fungi appear, though sometimes here and there are found apparently stunted or abortive groups.

The fungus, in fact, is allied in many respects to the common green mould (*Penicillium glaucum*) which grows on jam, paste, damp leather, etc., and is therefore very far from being one of the lowest of the group to which it belongs. The individual plant, in reality, consists of a conical mass of branched filaments springing from a single cell, and bearing on their short terminal branchlets the spores or *Conidia*, by which the mould is produced.

From the radiating structure of this micro-entophyte, and its being found at first in the ox tribe, it was named *Actinomyces* (ἀκτίς, a ray, μύκης, a mushroom or fungus) *bovis*. This, Bollinger asserted, was the first instance in which a fungus belonging to the class of moulds had been found in the interior of animal tissues, such as the bones. The designation of Actinomykosis (mykosis—μύκης, a fungus) was given to the disease, following the example of previous pathologists—such as Alibert, who applied the term mykosis to the affection in mankind known as *Frambæsia* (the *Molluscum contagiosum*, for instance, due to a vegetable parasite, and which he designated *Mycosis fungoides*).

Zippelius of Obernburg (Lower Franconia) informed Bollinger that, in the course of ten years, he had noted not fewer than 254 cases of Lymphoma in the vicinity of the larynx and pharynx, in addition to 157 cases of jaw tumours in cattle: and Bollinger

was of opinion that the majority of the first, and probably all of the second, were due to this fungus. Zippelius had also seen both forms of the disease in goats and swine, though much seldomer than in cattle. Veterinary literature also contained a number of cases of these tumours in goats and oxen; and Bollinger suspected that they would likewise be found to exist in sheep and other animals.

In other parts of Franconia, Professor Franck has found the tumours in the region of the throat so common, that among cattle owners, whenever an animal began to lose condition, it was said to have a "growth" (*gewächs*) in its throat. Even while Bollinger was writing his paper on the disease, he received a tumour from a veterinary surgeon in Pfalz, which was as large as a fist, and which he had removed from the pharynx of a two-year old bull.

For some time previously the animal could not eat, appeared to suffer great pain, coughed, and so rapidly lost condition that it had to be slaughtered. In the pharyngeal cavity this tumour was found just above the larynx. It was spongy in texture, and in the meshes of the fibrous framework was a puriform fluid containing the characteristic fungus in immense quantity. The spongy character of this granulation-tumour was so marked, that the unaided eye might have discovered its mykotic origin.

Bollinger's observations attracted much attention on the Continent, and as I have already stated, I gave a brief abstract of them in the VETERINARY JOURNAL for 1879 (Vol. VIII. p. 256), with the view of discovering whether the disease had been noticed in this country.

Their publication in Italy elicited the fact that Professor Rivolta, of the Turin Veterinary School, had already published a paper in the VETERINARY JOURNAL of that city, so long ago as 1868, on a sarcomato-fibrous tumour on the lower jaw of an ox; and after that date, in 1875, Professor Perroncito, of the Turin Veterinary School, had an article in the "Enciclopedia Agraria Italiana," on "The Osteosarcomata of the upper or lower jaws of cattle," in which he describes, among other microscopical objects found in the round and giant-cell sarcomata, cryptogamic bodies in conglomerations, which were made more distinctly visible by treating them with dilute hydrochloric acid, which dissolved the

lime salts surrounding them. According to Israel, Langenbeck, the famous German surgeon, had, years previously, described and delineated the fungus, which he found in the pus from a deep-seated vertebral abscess in a man in the hospital at Kiel; but some doubt is thrown upon the correctness of this statement.

In 1875, Rivolta undoubtedly described the structure of the nodules very accurately, and pointed out that the vegetable organisms were not crystals, but minute fungi, which were not soluble in water, alcohol, solutions of potass, or sulphuric or hydrochloric acids, etc.; the nodules were, in fact, discoid tufts (*cespugli discoidi*), composed of branching rods; these tufts were of unequal volume, and the nodules were the size of a poppy-seed.

In 1878, Siedamgrotzky, of the Dresden Veterinary School, furnished conclusive evidence of the correctness of Bollinger's descriptions and conclusions. In multiple sarcomata from the mucous-membrane of the pharynx of oxen, as well as a tumour from the lower jaw of a cow, obtained fresh, he found the *Actinomyces* described by Bollinger; but he was unsuccessful in cultivating it, or inoculating animals with it. In the same year, Israel published a case of what he designated "Chronic Pyæmia," occurring in man, in which the fungus was found, and its identity with that of the bovine species was subsequently established.

After this date, several German and Italian veterinarians record observations, all more or less interesting; while sixteen cases are reported by medical men in Germany. These I shall again refer to. In the meantime I will briefly sketch the symptoms of the disease, and mention the different situations and animals in which it has hitherto been observed.

Actinomykosis of the Tongue.

I have already stated that in this country, when the disease is present in the tongue, it is supposed to be Schirrus, Induration, Glossitis, Tuberculosis, Cancer, etc.* Doubtless, all these morbid

* For instance, in Steel's "Diseases of the Ox" (p. 234), in treating of Cancer of the tongue, it is stated: "In this disease the organ is the seat of small nodules of carcinomatous deposit, which more or less replace the proper substance of the organ, and some of them bulge beneath the mucous membrane of the dorsum. Some undergo softening, and the submaxillary and parotid lymphatic glands are generally involved through absorption of cancerous matter. This disease progresses slowly, and materially interferes

states may exist without the presence of the *Actinomyces*, but I think I may be pardoned, from the specimens forwarded from Gloucestershire and the cases reported, if I ascribe the majority of the instances which occur of disease in the tongue to this microphyte. In South Germany, where interstitial Glossitis or Induration is very frequently reported, nearly all those examined have proved to be cases of Actinomykosis. I have no doubt whatever that it is the same in this country. Take, for instance, the description given by Captain Russell, F.R.C.V.S., and we shall find Actinomykosis of the tongue graphically delineated.

He writes, when treating of Induration of the tongue in the ox—a disease very common in his practice in Lincolnshire: “I have observed that the disease commences with small patches of a yellow colour, associated with thickening of the mucous membrane, sometimes on the dorsal surface, sometimes on the tip, and at others underneath the tongue, or on one or other of its sides. This thickening, in the course of a short time, breaks up into a number of small pimple-like excrescences, which soon become confluent. As the disease spreads, a cheesy deposit is thrown off, leaving a very red and angry-looking surface. Subsequently, the organ becomes hard and swollen, and eventually hangs from the mouth perfectly useless. The animal quickly loses the power of prehension and deglutition, and if not destroyed usually succumbs to inanition. I do not find that either constitutional or local treatment is of any avail. Four years ago my attention was called to several cases, and this season I have seen as many as twenty. The progress of the malady is generally slow, the increase in size of the tongue being gradual; but as it progresses movement of the organ is diminished, and mastication is performed with corresponding difficulty. There are rarely any indications of severe inflammation noted, and this fact should differentiate the disease from Glossitis, as should also the absence of the acute pain which marks the latter. Discoloration may be present here and there; indeed, this usually precedes ulceration.”

(*To be continued.*)

with the development of the animal. It is incurable, and the flesh of cattle thus affected is not good meat, though always consumed. . . . Some authorities consider this disease scrofulous rather than a form of Carcinoma.”

THE EPIZOOTIC DISEASE AMONG BRITISH HORSES IN EGYPT.

BY J. J. MEYRICK, C.B., F.R.C.V.S., PRINCIPAL VETERINARY
SURGEON, CAIRO.

[We have received the following interesting communication from our esteemed colleague in Egypt, with regard to the serious and very fatal epizooty which appeared among the horses of the army of occupation immediately after the campaign. It will be noticed that the predictions we made in an editorial article in this Journal for September last, have been so far verified ; and there can be no doubt that had active operations been continued for a few more weeks, the mortality would have been very great. As it is, the losses have been, comparatively, rather heavy. We would commend to Army Veterinary Surgeons serving in Egypt, perusal of the editorial article just referred to, in order that we may obtain trustworthy information as to the climatology and the animal diseases of Egypt. To account for the pernicious anæmia from which the horses suffer, we would suggest that the nematode worm—the *Ancylostomum duodenale*—be carefully looked for in the upper part of the small intestine, where it burrows into the mucous membrane, and produces in mankind the disease which has been designated “ Egyptian Chlorosis.” For reports on serious outbreaks of disease among horses in Egypt, see ‘Animal Plagues,’ Vol. I., year 1328 ; and VETERINARY JOURNAL, Vols. III., pp. 298, 364 ; IV., 431 ; XI., 40 ; XV., 177.]

LAST week I sent a small tin box, addressed to you, and containing bottles of blood from two horses which died here of the prevailing fever, together with bottles of the water which each of them had been drinking. The latter comes in pipes from the Nile, which, during the last few weeks, has been at its highest point, and is very muddy in colour until it is kept long enough to allow the sediment to fall. One horse died in the city of Cairo, and the other at Abassieh, a cavalry station with barracks four miles distant. I have instructed V.S. Clayton to send you some blood from Alexandria, for the fever has prevailed all over Egypt. During a *post-mortem* which he and I made there some weeks ago, we found a fine specimen of a blood tumour in the spleen. . . . I will also forward you some more bottles from here in a day or two, if the Post Office will take them without asking what the box contains.

The disease began at the latter end of September, with a few isolated cases, which were considered to be Bilious Fever caused

by continued exposure to the sun. The number of horses attacked increased rapidly during the second week in October, and did not begin to diminish until the first week in November, after which the disease declined in its virulence, and there have lately been very few fresh cases.

The rate of mortality was high, the horses having been brought, previously to the outbreak, into a state of great debility by the severe labour undergone in marching through the sand from Ismailia to Cairo, with a burning sun overhead. Syrian and other Eastern horses were not attacked in nearly the same proportion as those of English blood, and of the latter the under-bred showed less power of resistance to the disease than the well-bred. Mules escaped it altogether, unless two were affected, which died at Alexandria with decided symptoms of Anthrax. Among the horses there were, during the month of October, 306 cases and 78 deaths.

The disease appears to have prevailed throughout the cultivated districts from Cairo to Alexandria, and its exciting cause was, I have no doubt, miasma given off by the swampy soil during the rise of the river Nile.

The chief predisposing cause seemed to be the inhaling of emanations from animal excrement. All the stables in Cairo, whether belonging to the Egyptian army or to private individuals, are badly ventilated, and have floors saturated with urine. Horses placed in them, even for a few days, were affected in much greater numbers than those picketed in the open air. The latter were by no means exempt, and in one place a large proportion of them suffered; but the ground upon which they stood is in a very impure state, owing to its proximity to the city and barracks, and also owing to its having been used for hundreds of years as the encamping-ground of the pilgrims going to Mecca.

The first symptoms of the disease usually were: loss of appetite, with yellowness of the mucous membranes, petechial spots being often observed on them after the first or second day, and in some cases at the very beginning of the attack. The breathing was quick, and the pulse ranged from 60 to 80. In a very few cases there was a lymph-like discharge from the

nostrils, similar to that observed in the form of Anthrax, called "Loodiana Fever" in India. After the first day the appetite usually returned, more or less, and was frequently good, even in those cases which terminated fatally.

Death often ensued within two hours after a horse was first observed to be ill, but generally the fever lasted from three or four days to a week, either destroying the patient or leaving it in a state of debility from which it was a long time in recovering.

Some cases lingered for three or four weeks, dying at last in an anæmic state.

The *post-mortem* appearances varied considerably, but they resembled in many respects those of Anthrax in most of the animals which died after a short illness. In these were observed yellow clots and effusion of serum into the abdomen, patches of the red colouring-matter of the blood on the coats of the intestines or in the omentum, and sometimes enlarged spleen. In several instances portions of the heart were stained a dark purple colour. The liver was occasionally congested, but often apparently quite healthy.

In cases which lingered for some weeks nothing was found, as a rule, except pallor of the membranes, with sometimes a friable liver.

The most important part of the treatment consisted in careful nursing and supplying plenty of pure air. Horses which were very ill in their stables, often recovered rapidly after being tied out of doors under a tree; but, unfortunately, shade of that description was not plentiful, and exposure to the sun added to the difficulty of cure.

Medicines appeared to be of little use, not even excepting Carbolic Acid, which seems more beneficial than any other remedy in Loodiana Fever. Better results followed the administration of salines, such as Nitrate of Potash or Carbonate of Soda, than of anything else; supporting the patient's strength after the first few days with diffusible stimulants and nourishing food.

A SIMPLE TOURNIQUET.

BY A. METHERELL, M.R.C.V.S., BRIGHTON.

I DESIRE to commend to those members of the profession who operate much upon the extremities, the above appliance, which I do not find in veterinary instrument catalogues. In principle it is not new to the medical profession, though dissimilar in its most essential detail.

So simple is its construction that it can scarcely be called an instrument, consisting merely of eighteen inches of solid small india-rubber rope, known to the trade as "round cord." A hook and thimble are attached at opposite ends.

The *modus operandi* is simply to wind this ligature as tightly as possible, three or four times, round the limb, above or below the knee or hock. No sponging is required in most cases, and in none is there more than the operator can conveniently manage himself. Should an artery be severed, no immediate inconvenience arises, as it can be tied with the greatest possible facility, and without appreciable hæmorrhage.

The merits of this compress are: its complete efficacy, its extreme simplicity, and, above all, its cheapness. I am unacquainted with the one devised by Mr. Field, and supplied by Messrs. Arnold at fifteen shillings; but I know it cannot be more efficient than this one, which I trust will be sold for a mere trifle. It cost me two shillings, and is practically indestructible; but of course it has not Arnold's finish. In these days of depression in general, and in agriculture particularly, most veterinary surgeons will welcome cheap and effective instruments.

NOTES ON THE TEETH OF THE CAMEL, AS INDICATIVE OF AGE.

BY G. A. OLIPHANT, F.R.C.V.S., ARMY VETERINARY DEPARTMENT, INDIA.

I HAVE not, so far, been able to ascertain definitely the course of dentition in very young animals; but have succeeded in obtaining correct data to guide selection from two years and upwards,

which will prove, for all practical purposes, sufficient—the youngest age at which camels ought to be taken for the service being six years.

Leaving out of consideration the molars or back teeth, which have but little interest with regard to the judging of age, the camel of full age has in the lower jaw six incisors, or front teeth, and two tushes, or canine teeth, occupying the usual position, as in the horse, etc., immediately posterior to the third pair, or corner, incisors or nippers. As in the cow, etc., there are no incisors in the top jaw, their place being occupied by a tough pad ; but there is a well-developed canine tooth, corresponding with that in the lower jaw, on either side, and, in addition, two smaller teeth of the same description (one anterior and one posterior to each of those already described), and which, for the sake of easy description, I will designate the secondary canine teeth ; the central ones and those in the lower jaw being called the principal. The full mouth of teeth, therefore, consists of six incisors and two canine teeth in the lower jaw, and six canine teeth in the upper.

As in other animals, there are two distinct sets of teeth—the milk teeth in the young animal, which are ultimately shed, and replaced by the permanent set. The difference in appearance between these two sets of teeth as to size, shape, etc., is so marked, that the most casual observer may learn to distinguish them after the inspection of a very few mouths.

Starting, then, at two years of age, the animal will be found to have six incisor teeth in front, and one canine tooth on either side in the lower jaw, and one canine tooth on either side in the upper. All these teeth are of the temporary or milk class. The incisors, small, white, chisel-shaped, with sharp edges ; the canine teeth, small and pointed, the upper ones especially so.

At three years of age the incisor teeth have become blunt on their edges, the extent of wear decreasing from the centre pair to the corner teeth, of which the cutting surfaces are still tolerably fresh.

At four years of age the incisors are much worn down, fully to half their length ; presenting, instead of the flat, chisel-shape,

the appearance of a set of round pegs, set wide apart in the jaw, and are much discoloured. This wear increases up till nearly five years of age, when the temporary teeth will be frequently found to be worn quite down to the gums. The mouth at this period might appear to the uninitiated to be that of a very old animal; but the smallness of the remains of the teeth, and more particularly the absence of the powerful tushes seen in the older mouth, will readily mark the difference.

At about five years of age the first permanent incisors are cut, and a series of very marked changes commences in the mouth. Two large, broad, chisel-shaped teeth spring up in the front or centre of the lower jaw, and speedily grow to a considerable length, showing a very marked contrast to the remaining portions of the temporary teeth. The animal is now described in the vernacular as *do uk*, having been previously known as *chatri*.

At about six years of age the second pair of incisors appears, one tooth on either side of the centre pair, and the camel is known as *chowga*.

At seven years of age the last, or corner, incisors are cut, and the title *chiga* is applied.

Between seven and eight years of age the tushes in the lower jaw are cut, quickly followed by those in the upper. At about eight years old these canine teeth have attained a length bringing them fairly on a level with the incisors, and the latter named are fully up, level with each other, the centre pair showing signs of wear on their cutting surfaces; the second also, but in less degree; the corner pair being quite unworn. The camel is now described as *nesh* or *jewan*, and may be considered in its prime.

The two secondary tushes on each side of the upper jaw are cut after this date; but I have as yet been unable to fix the exact period, and, from a considerable number of observations, I am inclined to think that they are somewhat irregular in their time of appearing.

Increasing age is marked by the wearing down of the incisors, the cutting surfaces becoming more and more blunt, contracted from side to side, and wider from front to back, until, in the very old animal, they become, as in the four-year old, worn down to mere stumps. The principal pairs of tushes increase gradually

in length, and, from holding a position somewhat sloping forward in the mouth, get upright, and, especially in the case of the upper ones, eventually curve backward. In very old animals the tushes are worn by friction against each other. Another description of wear in the incisors is also seen in animals between three and four years of age, and also after eight years of age; that is, when the temporary and permanent teeth are respectively beginning to show wear. There is an indentation of the sides and tops of the teeth, caused possibly by friction in the act of jerking the head, to break off foliage in browsing.

It will be seen that, at one period of the animal's life, namely, four years to five years of age, the mouth is almost devoid of teeth; and from that to full six years of age, when four teeth are fully established, there must be considerable difficulty in gathering food, this being increased by the tenderness of mouth caused by the cutting of the permanent teeth. It is at this age, when, it may be reasonably argued from our knowledge of other classes of animals, the camel is most subject to disease and as little fit for physical exertion as at any period of its life, that large numbers are purchased; and I can, from personal observation, vouch for the fact that very many of those which have died in Afghanistan were of this class.

ANTHRAX IN CACHAR AND MANIPUR, INDIA.

BY J. GRIFFITH EVANS, M.D., ARMY VETERINARY INSPECTOR,
MADRAS.

(Continued from page 383, vol. xv.)

24. *Ponies running loose have the Disease as much as those in Stables.*—Though on general sanitary principles too much attention cannot be paid to keeping the stable floors dry and clean, yet I have failed to find in Assam that Anthrax is more common in stables with bad flooring than in stables with good flooring; and it certainly affects the ponies which run loose unstabled quite as much, and more according to the best information I have received, than those which are stabled. The statistics received from the tea gardens, already referred to in

paragraph fifteen, show that the disease is about three per cent. more fatal among the ponies which are allowed to run loose on the alluvial plains unstabled than among the ponies of Europeans stabled on the tops of the porous hillocks and plateaux. The Resident at Manipur states that the soil of that valley throughout is a clayey loam, that the disease appears in all parts of it, and that it appears equally among stabled and unstabled horses (*vide* paragraph 1, C and D). The Manipuris residing in Cachar and at Gauhati, who know much more about horses than other natives, and whom I repeatedly cross-questioned upon the subject, all declare that the disease does not attack those in stables more than those running loose; but, as one of them remarked, if several ponies stand near each other, whether under cover or in the open, if one of them gets the disease, they are all most likely to get it within a few hours. I have already mentioned that the only stable out of the five situated close to the river at Gauhati, in which the disease appeared, and where four have died of it, is the only one in the station that is not on alluvial soil (*vide* paragraph 19).

25. I conclude, therefore, that the disease in Cachar and in the Brahmaputra Valley, as well as in the state of Manipur, is not due to what the Principal Veterinary Surgeon thinks is the chief cause in Bengal.

26. *Emanations from Swamps.*—In Europe the cause of the disease is believed by many to be some emanation from swampy ground, and conveyed in the air either with the dust, or the dew, or the fog, and sometimes to a considerable distance from where it was generated, and also that it enters the system by the lungs. This opinion gains support by circumstances found in Assam, the swamps in the neighbourhood of places where the disease prevails, and the sudden way in which it is rapidly extended over wide regions in “epizootic years,” etc. If the cause of the disease emanates from water to the air, it is obvious that it may be taken into the stomach by drinking that water, and pass from the stomach with the water into the blood, unless the walls of the alimentary canal, like a filter, prevent it. This question, therefore, deserves serious consideration.

27. *The Bacillus of Anthrax and the Common Bacillus.*—It is

very probable that the *Bacillus* of Anthrax is indigenous in some localities before domestic animals go there to be affected by it, and that it becomes more virulent after cultivation in certain fluids than it was before. Rodent animals are much more subject to the disease than horses and cattle, and it cannot be doubted that dead rodents help to spread the infection. A *Bacillus*, undistinguishable by the microscope from that of Anthrax, readily developes not only in stale urine, as stated in paragraph twenty-two, but also in many organic infusions under favourable conditions, and it is often found in impure well water ; but it has not been proved to be the cause of disease when transferred into the veins of a living animal. Whether it may acquire the virus of Anthrax if cultivated in a way not yet discovered, no one knows, though some believe it may ; and that the *Bacillus Anthracis* and the common *Bacillus* are essentially and organically the same, the only difference being an acquired virus. Possibly future researches may prove it to be so, though probably not. If the large edible and poisonous fungi were as small as the *Bacillus*, they could not be distinguished by the most powerful microscope. Recent researches have proved that the *Bacillus* of Anthrax may be deprived of its virus by a certain method of cultivation, though its propagating powers remain apparently unimpaired, but it recovers its virulence again when it is transferred to favourable soil. Present indications tend to show the *Bacillus* of Anthrax is much more commonly distributed in every quarter of the globe than was formerly supposed, and, like other fungi, it occasionally increases in numbers, and perhaps in virulence also, to an incalculable extent, owing to some modifications in the laws of its life with which we are not acquainted. As a rule only one out of many millions of the spores of the common large fungi finds a suitable soil and conditions for growth and development to maturity, the others being all destroyed by natural agencies, which is a very merciful providence for which we cannot be too thankful. Such is the case, doubtless, with the *Bacillus* and other microscopic fungi ; and perhaps the cause of their increase in "epidemic years" may be a suspension or decrease of the natural elements which usually destroy them, as well as an

increase of the fluids most favourable for their nourishment. It is very remarkable that the disease disappears every year from Cachar at the commencement of the rainy season, no matter how bad it has been up to that time, and it will not recur in that district before the next dry season. The rains are ushered in at Cachar by very violent thunderstorms, worse, I am told, than in any other part of India ; and it is worthy of consideration whether the ozone liberated by the lightning has any share in the natural process of checking the disease. Of course the rain itself has much to do with the life-history of microscopic fungi, which find a more favourable soil for development in stagnant water exposed for a long time to the sun, and allowed to dry up slowly, such as is common throughout India at the close of the dry season. I shall recur to this again when I come to consider the drinking water.

28. *Infection more readily taken by the Lungs.*—Recent researches have also proved that the spores of the Bacillus pass into the system much more readily when breathed in a dry state into the lungs than when taken into the alimentary canal with food. Rodent animals, which are the most subject to Anthrax, may eat the infected flesh and blood mixed with food with apparent impunity, *provided there is no abrasion of the mucous membrane lining the alimentary canal.** If after being so fed for some time a rodent be killed, and the contents of its intestines be dried and afterwards finely pulverized, and then inhaled by another rodent, the latter will take the disease and die in a short time, with the Bacillus swarming in its blood. This shows that the spores retain their virulence in the intestines, and pass through without doing harm to the animal that ate them ; and it also confirms the opinion which I expressed in my last letter to you, No. $\frac{B}{19}$, of the 3rd ult., paragraphs 11 and 12, that jackals and vultures and crows, etc., feeding on the carcasses may sow the spores broadcast with their droppings, and thus spread the disease.

29. *The Virus conveyed by the Atmospheric Currents.*—In the dry season of 1878-9 the disease destroyed most of the ponies kept on the porous ridge at Silchar, and none of those kept on the

* *N.B.*—Horses have slight sores on the gums and lips from the bit, etc., much oftener than suspected.

retentive alluvial clay near the river Barak got the disease ; but in the following year it was reversed, for nearly all the ponies kept by officers on the riverside died of the disease, and none got it on the ridge. This, I think, can be accounted for only by the supposition that the virus travelled in the air, and its path happened to be directed by currents along the ridge one season, and along the riverside another season. I could find no difference in the food and water to account for it. This year both the civil line on the ridge and the military line on the riverside has escaped.

30. *Instructive Cases.*—The two cases which I had the opportunity of investigating *post-mortem* at Burkola Tea Gardens are very remarkable. The pony belonging to the manager was found dead in the stable in the early morning of the 27th January last, and the one belonging to the native employed on the garden was found very ill at dawn, and died about 10 a.m. the same day. The manager's pony was with five others in a stable made of bamboo, well ventilated, the flooring raised, in fair order, situated on the edge of a porous plateau, about 225 feet above the clay fields of the plain. The side of the plateau is very steep, allowing good drainage. The surroundings were clean. The drinking water was good, obtained from a "pucka" well very deep in the sand, and walled round at the top. The grass would pass as excellent doob in any regimental stable in Bengal; it was obtained from the sloping side of a river, washed and dried, the same as what the ponies belonging to this garden had been having in the cold season for the past nine years, and they always did well upon it, though the ponies of the other gardens on the plateaux north of the Barak, with few exceptions, got no grass from the riverside, but from the roadsides on the uplands. This pony was seven years old, in good condition, had not been off the sandy plateau for months, except once or twice a week to the target range, where he was always led by a syce or else tied to a tree. He was never allowed to eat grass or drink water there, not from any suspicion of danger, but because there was no necessity. The ponies of other gentlemen, coming from a longer distance to the target, were often let loose during the practice to graze and drink, and were not apparently the worse for it. The pony belonging to the native was turned

loose every day on the rice stubbles of the alluvial clay, at the foot of the tableland, with the ponies of other natives, when he drank swamp water, or river water, as he pleased. At night he was usually tied somewhere near the hut where the owner lived, on the clay land at the base of the plateau, about three-quarters of a mile from the stable of the manager's ponies, but never under cover. These two ponies had not been in each other's way, I am credibly informed, for many weeks; they were thus exposed to entirely different sanitary conditions, and yet they got the same disease, and died about the same time, all the other ponies on the estate escaping. This strongly reminds one of those sporadic cases of Cholera which occur about the same time at different ends of the same station, in people exposed to entirely different sanitary conditions, with regard to houses, food, and drink. The only possible explanation, I think, is in the fact that the atmosphere is a common medium by which infected particles scattered in it may enter the mouth and nostrils of persons distant from each other, while individuals near them may escape. These infectious particles are not visible to us when they are transported in the air, and, therefore, we are puzzled by their operations; but if we watch how larger objects, such as thistle-down, are scattered by ærial currents, we shall learn a useful lesson with regard to the spread of infectious particles.

31. About two months before the above ponies died, the pony of the Baboo doctor on the estate was found dead one morning, though he was supposed to be well the previous evening; he was running loose in the rice-fields of the lowland, like the ponies of the other natives. That pony was bought by the Baboo about a week previously, at some place distant, but I could not learn where. No one knows what that animal died from, but there is reason for suspecting it was Anthrax, since the other ponies died of that disease so suddenly, and, if so, it is almost certain that he imported the disease to the garden, for Mr. Ferguson, the manager, who has been there nine years, assures me that during that time no animal died on the estate of the disease in any of its forms before these cases.

32. *The Doob-Grass.*—At Silchar I found several gentlemen attributed the disease to the doob grass commonly obtained there

from the sloping banks of the river, which deposits very filthy matters on the shore as the water lowers when the dry season advances. The soil is dug up with the roots of the creeping stem, and though it be beaten off, and the grass washed in the river, and then dried before it is taken to the stable, it is never absolutely clean, though it would pass as good in any regimental stable in Bengal. There can be no doubt that if the grass were obtained from the spot where the virulent *Bacillus* of Anthrax flourished, it would be very likely to convey the poison ; and, moreover, when we know that dead carcasses are thrown into the river by natives, which may be seen to rot on the banks, we are warranted in believing that in some instances the virus of the disease is conveyed in that manner, for it is likely enough that when the carcass of an anthracoid animal is exposed this year, the grass-cutters will be rooting up the doob for ponies next year. But, nevertheless, if that be a cause of communicating the disease, I think it is extremely uncommon.

33. The fact of some gentlemen having lost no ponies since they ceased to get grass from the riverside, whose ponies died of Anthrax previously, is no proof that the grass caused the disease ; nor is the fact of many more having never lost a pony, though they always got grass from the riverside, a proof that there is no danger in using that grass. On the plateaux north of the Barak, doob from the riverside is not easily obtained, and, therefore, is never used except in a few places, but Anthrax appears to be as common there as on the south side. North of the Barak, doob is almost always got from the dry ground on the roadsides. In the Brahmaputra valley ponies die of the disease which are fed on bamboo leaves, which grow high enough above the ground, instead of grass. The ponies are very fond of the leaves, which the natives tell me are especially good for all chest affections in horses, "good for the wind," etc. In Europe, cattle feeding on rich, long pasture are said to be more subject to the disease than those feeding on short grass, biting it off close to the ground.

34. *Dry Grass*.—Mr. Daly lost two valuable racing Waler ponies at Silchar in 1877, which were taken great care of, and fed on dried doob that had been stacked for them like hay. This is worth knowing, for the Government of India last year sanctioned an

experiment to be made at Barrackpore (the worst station for Anthrax in Bengal), by giving hay-doob to the horses of half a battery, and fresh doob to the other half, to see whether those having the hay-doob would be less subject to the disease than the others, as some thought they would be; but during the time the experiment was carried on, the disease did not appear at the station.

35. *Jheel Grass or "Wild Rice."*—Before quitting the subject of grass, I may be permitted to state that the horses of the Bengal Cavalry have been wonderfully free from Anthrax at Barrackpore during the past three years, where there have been several serious outbreaks among the horses of the Royal Artillery, the latter having better stable flooring, and better sanitary arrangements generally, with very good-looking doob-grass, while the Bengal Cavalry had "jheel grass," a kind of wild rice growing in deep marshy ponds, which has to be fetched in a boat, and cut just above water; it was always given wet; the horses are very fond of it, and keep good condition. I cannot account for the Bengal Cavalry horses being so much more exempt from the disease, unless it be the difference of grass, but I offer this as a conjecture only.

36. *The Season.*—I have already remarked that the disease never appears in Cachar except in the dry season (*vide* par. 27), and it is more common in the latter half of that season—from 15th January to 15th April; the disease disappears from the district every year at the commencement of the rainy season, whether that be early or late, no matter how common or widely distributed it was before. It has also been much more common in the Brahmaputra Valley each year during the dry season, though cases have occurred there occasionally during the rains. Col. Johnston states that the disease appears in the Manipur Valley at all seasons of the year (*vide* par. 1, B), but he does not say whether it is more common at one season than another. It is necessary to consider this question of season a little before we proceed to that of the drinking water.

37. Paragraph 11 of this letter shows how the valleys of Cachar, south of the Barak, are left at the commencement of [the dry season, after the subsidence of the annual inundations, covered

with a fresh deposit of slimy alluvium upon the vegetation of the previous year, which must proceed to decomposition. But the first period of the dry season, when the moisture and the other emanations are being evaporated like feverish perspirations from the fens, is not the period for Anthrax; that is the time when intermittent fever is common there, and still more on the tablelands north of the Barak at the foot of the high mountains. After the land is well cracked and dried, when the large rivers are very low, the Barak having gone down about thirty feet, many of its tributaries dried, doob-grass growing on the dry beds of swamps, other swamps shrunk into small ponds of green jelly, the tanks used by natives for drinking water and for bathing are even too filthy for the requirements of ceremonial religion, many of the wells are dry, and the little water which remains in others is often dangerously impure. People do not complain now of intermittent fevers, but of bowel complaints, and this is the worst season for Anthrax among the horses every year. The "winter" of 1878-9, when Anthrax was epizootic in Cachar and the Brahmaputra Valley, was uncommonly hot and dry.

38. *Conditions favouring the Development of the Bacillus.*—Prolonged heat and dryness, with exposure to the sun, are known to favour the development of the common and apparently harmless Bacilli in stagnant water and organic infusions, such as we commonly find in Cachar and the Brahmaputra Valley. Such are the conditions also found most favourable in laboratories for the artificial cultivation of the virulent Bacillus of Anthrax.

39. If we admit that the Bacillus of Anthrax and the common Bacillus are developed by nature side by side in the same damp soil or stagnant water, the mystery of the disease is solved for all practical purposes, provided the Bacillus is the real cause of the disease.

40. *How the Bacilli are propagated.*—If the Bacillus of Anthrax is naturally developed in stagnant water under favourable conditions, it may be conveyed to animals by the air as well as by drinking water; so that the fact of animals drinking pure water becoming subject to the disease is no proof that the cause did not originally develop in water.

A. It is admitted by all that the spores of the common *Bacillus* are carried about in the air, like those of the *Bacteria* of putrefaction, sown broadcast everywhere, ready for development wherever they find favourable conditions. They may be found in scrapings from the gums and the necks of the teeth of most people, and their very universality is the chief reason why some eminent investigators continue to disbelieve that the *Bacillus* found in Anthrax blood is the cause and not the product of the disease; they think it is only the common *Bacillus* which has acquired virus by its development in diseased blood, which virus, when thus once acquired, adheres to it through all its future generations, though it may be modified, as before stated in par. 27. This is not the place to enter deeply into that controversy which is still proceeding among those who make those low organisms a special study; but I wish to show that, whether the *Bacillus* of Anthrax and the common *Bacillus* are specifically the same or not, there is no cause for doubting that the spores of the one are conveyed about and sown broadcast by the same atmospheric and other agencies as are the spores of the other; and if we can understand how the spores of the common *Bacillus* are propagated, we can also understand how the spores of the *Bacillus* of Anthrax are propagated, and with them the virus causing the disease.

B. In the laboratory we find that the fluids which are most favourable for the natural development of the common harmless *Bacillus* are also the most favourable for the artificial cultivation of the virulent *Bacillus* of Anthrax, by transplanting it from the diseased blood into those organic solutions. What is thus done in the laboratory is carried on naturally outside, not only by atmospheric agencies, but by the animals which feed upon the carcasses. Jackals, vultures, crows, flies, etc., convey the blood swarming with the virulent *Bacilli* from the carcasses to the water which they drink, and if that water is stagnant, under favourable conditions those poisonous fungi will multiply in it to an incalculable extent, and it becomes a centre for the spread of infection, exactly like the impregnated fluid of the laboratory.

C. The spores of the *Bacillus* may rise from the scum of the water with the invisible steam that always evaporates from water

exposed to the sun, as well as in the denser fog which is so common in swampy districts.

D. When the stagnant pond in which these organisms are developed becomes shallow by evaporation, after long exposure to the sun, they flourish more in it. When the water has all been evaporated the spores remain on the surface of the dry mud; and when that is pulverized and raised as dust by the wind they are scattered about; most of them perish by natural agencies, but a few find congenial soil and circumstances elsewhere sooner or later and propagate anew. When doob-grass grows on the dry bed of such a pond or swamp, and its creeping stems or roots are dug up for horses to eat, what remain of the low organisms which flourished in the water are also taken with the soil adhering to the roots.

41. I beg leave to remind you here of what I have already stated in paragraph 9, that in Europe the disease is reported to have disappeared from swampy districts entirely after they have been drained, though it was very common previously; and in Cachar the disease always disappears with the annual advent of the heavy rains which flush the land and inundate the valleys; the stagnant ponds and the beds of the dried ones are thoroughly washed out, and all embraced in one common flood of fresh water. The wells are also filled with water freshly filtered through the sandy beds.

42. *The Drinking Water.*—As might be supposed from the geological report of Mr. Blandford, quoted in paragraph 9, the water in the wells sunk in the low clay land of Cachar is not good; the water at the close of the dry season will not keep many days without tasting offensively, though it may appear clear and taste well at first. But it is better than the water from the tanks; and when the dry season advances, the natives reserve it for themselves when they can get it, and give the worst water to the ponies. The river Barak is filthy when it becomes low in the dry season. But there is always good water in some of the wells sunk deep in the sandy upland tea gardens, and I found ponies drinking from them got the disease like those which drank bad water, though I am of opinion not nearly in so large a proportion. It was not possible to obtain exact statistics to show this. Some tea-planters told me that they had often thought their ponies were more

subject to get the disease after a long journey from home, and they attributed that to the probability of the syces having given them stagnant water on the road. But that does not account for those cases, not very uncommon, where four or five ponies stood in the same good stable, having good grass and good water, and the majority of them get the disease the same day and die in a few hours. It is more probable that there are swarms of infectious spores carried about in the air, and when a stable full of ponies stands in the path of the poisonous currents several of them are destroyed together.

43. The evidence at Gauhati is very strong in favour of the theory which attributes the disease to drinking stagnant water from tanks and swampy ponds. I was informed by Captain Willans, R.E., Mr. Bell and Mr. Aitken, tea planters, and others of the oldest European residents, that during the epizootic years 1878-9 and '80, no horse got the disease in stables where it was more convenient for the syces to water the horses at the river than at the tank; but in every stable where it was more convenient for the syces to water from the tanks than to take them to the river, there the disease appeared, and the mortality was very great. I visited every compound in the station with a map, on which was marked where horses of Europeans died, to verify this statement. I have already drawn attention (*vide* paragraph 19) to the remarkable fact that out of the five stables occupied on the river side, the disease appeared in only one of them, and that one the most elevated in the station, on a non-alluvial clay, raised up by projecting granite. There four horses died of Anthrax. The explanation offered is this, that it was more convenient for the syces to water them at the filthy tank opposite the Dāk bungalow than to take them to the river, or to bring river water for them because of the steepness of the rock at that place. There are no wells at Gauhati, and the tanks are all exceedingly foul at the close of every dry season; they were unusually so in the prolonged dry season of 1878-9, the epizootic year.

44. I was informed by Captain Willans, R.E., that when the disease appeared among the Tonga ponies at Nongpoh, he suspected the cause to be the stagnant water of the tank which they always drank, and he ordered the Baboo in charge not to allow any

of the ponies again to be watered there, but at a good flowing spring in the side of the hill not far off, the water from which was conveyed to the roadside by a bamboo pipe. Several of the ponies which were sent there afterwards, to replace those which had died, got the disease and died too, though Captain Willans firmly believed they got no water except from the pure spring. When I went there I found the ponies drinking the foulest water in the neighbourhood; the Baboo pretended to know nothing whatever about the existence of the good spring, until I told him I had Captain Willans' authority for it. Then, after much prevarication, he excused himself by saying that the syces complained to him of the distance to the place where the good spring water falls on the roadside from the bamboo pipe, and begged him to let the ponies have the water nearest to the stable, and he allowed them because he thought it was of no consequence, for the Khansamah at the Dāk bungalow got water for Europeans to drink from the tank I complained of! The distance to the pure spring water from the Tonga stable, which is close to the Dāk bungalow, is only a few hundred yards on level road. It is therefore probable that Captain Willans placed too much faith in the Baboo, when he thought his orders were obeyed last year. At the stage named Burny, between Nongpoh and Gauhati, I found the Tonga ponies watered from a swamp close to the stable, though there is a very broad river flowing by within a hundred yards, and the excuse given to me for not going there for water was the distance! I am certain that is not in accordance with Captain Willans' orders.

45. *Anthrax is not known in Sylhet.*—No report upon Anthrax in Assam would be complete without something more than a passing notice of the district of Sylhet, where the disease is not known to have appeared yet, though it adjoins Cachar, and all the conditions which are supposed to favour and cause the disease in other parts of Assam and Bengal are found abundantly in Sylhet. It seems to me that we are not warranted in fixing upon any particular conditions as causes of the disease elsewhere, if we find them as much at Sylhet, unless we can also explain why they do not cause the disease there as well.

46. *The Sanitary Condition of Sylhet.*—The physical aspect of

Sylhet district is thus described in "Hunter's Statistical Account of Assam":—"Sylhet consists of the lower valley of the Barak or Surma river, an alluvial plain of about seventy miles wide, bounded north and south by high mountains, opening west towards the delta of Lower Bengal, and adjoining Cachar on the east. The greater part of the district is a uniform level, only broken by clusters of sandy hillocks, called *tilas*, and intersected by a large number of rivers, watercourses, and drainage channels. During the rainy season, from about June to October, the torrents that pour down in cataracts from the hills, together with the heavy local rainfall, convert the entire surface into a boundless sea of waters, amid which raised village sites appear as islands, and the only means of communication is by boat. The rural post requires to be carried by boat for five or six months in every year. The banks of the rivers, as is the case in all alluvial tracts, are raised by annual flood deposit to a higher level than that of the surrounding country. The low strip behind the banks is every year subject to a protracted flood, and is usually covered merely by reeds and grass. Another portion is only liable to slight or occasional inundation, and here the villages are built on the higher spots, while the rest, which is very fertile, is under continuous rice cultivation. The village sites and all the higher lands are embowered in groves of bamboos, palms, and other trees. In the neighbourhood of Sylhet town, the *tilas*, or sandy hillocks above referred to, rise to a height of from twenty to eighty feet. For the most part they are overgrown with grass jungle, but some of them have recently been cleared for the cultivation of tea. The town of Sylhet is only fifty-five feet above sea level, and large portions of the district are considerably lower. The soil is for the most part a blue clay, which becomes black on the borders of the swamps or *haors*, as they are called locally."

"The chief epidemic disease of Sylhet is malarious Fever. It does not seem that any great change has recently been made in the sanitary condition of the district by the clearing of forests or the draining of swamps. Dysentery and Diarrhœa are prevalent, as also are many cutaneous disorders. Cholera and Small-pox not unfrequently appear in an epidemic form.

“Water for domestic purposes is obtained from rivers and tanks. There are few wells in the district. In the town of Sylhet the natives prefer the river water, and all who live near the river bank universally use it. Although it is polluted by dead bodies, burning ghats, and filth of all description, the tanks are in an even worse condition, and on the whole the preference shown for the river water is not irrational.” (Stabled ponies are taken to the nearest place for water, without regard for quality, whether it be tank, river, or well.—G. E.) “With a few exceptions, the tanks are miserable puddles, most of which dry up in the hot season. The large tanks are defiled by bathing, and by the practice of washing clothes in them, cleaning cooking vessels, etc. They are never cleaned out, and as the ground slopes towards them this affords a ready means for all the filth in the neighbourhood to be washed in during the rains. They are, moreover, closely surrounded or overhung by clumps of bamboos and various kinds of trees, and the dead leaves fall into the water, filling it by their decomposition with organic matter.”

47. Short doob-grass growing on the riverside, like that supposed to cause the disease sometimes on the south side of the Barak in Cachar, is occasionally used for feeding ponies in Sylhet also. But, as a rule, almost without exception in the town of Sylhet, a long doob-grass is sold in the bazaars, obtained from the dry clay beds of swampy tracts, which during the rainy season are about twenty feet under water—too deep, I was told, for rice cultivation. I visited some of these prairies, and was much edified thereby. The water deposits a rich alluvium every year upon the growth of the previous season, which affords good nourishment for the next crop. When the land emerges at the subsidence of the deluge in the commencement of the dry season, it looks as if it had been soaked in slime; but in a marvellously short time the sun dries it, intermittent fevers being common during the process of evaporation, and in a few weeks the country for many miles in extent will be covered by a coat of green doob-grass, which throws out longer blades than I have seen elsewhere. When the blades are full grown, they become brown and wither, but young shoots grow among them; thus

there is a succession of crops throughout the dry season, and the ground becomes covered by a dense tangled mass of matted grass, which in its turn becomes submerged during the next rainy season, and with the alluvium assists in the natural process of land making. So it has gone on from prehistoric times ; the soil is therefore rich in decomposing organic matter, and owing to the large proportion of blue clay in the subsoil, it is very retentive. Extensive swamps remain in many places unevaporated throughout the dry season. Ponies out of condition or lame are often turned loose to pasture on these grass lands. Some are sent there from Cachar. I am told that they usually do well, though occasionally they suffer from dropsy and worms, probably from drinking the swampy water. They must often inhale the emanations from the ground, which are retained by the density of the grass, the growth of which is such as to prevent, to a great degree, free ventilation on the surface of the earth. The stems of the creeping grass are but lightly adherent to the ground by delicate roots, very different in this respect from the common short doob, and the grass-cutters pull and break them off in handfuls instead of cutting below the surface of the ground, as is common in other districts with the short doob. Therefore, the stems, as a rule, come loose from the earth readily by pulling, the upper layer of alluvium in which it grows being only slightly consolidated. Yet the roots are far from being clean, and I found lumps of mud adhering to them before the ponies in the stables of gentlemen at Sylhet town.

(To be continued.)

Editorial.

THE FUNCTIONS OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

It appears to be the fact, that ever since the incorporation of the veterinary profession by the institution of the Royal College of Veterinary Surgeons, every attempt made to improve the education or position of the veterinary surgeon has met with more or less opposition, which was always more or less successful. This opposition has generally been made by persons in the profession itself, and arose from motives of self-interest, jealousy, or other unworthy feeling ; and this has, in reality, been the principal cause for the very unsatisfactory condition of affairs

with regard to veterinary medicine in the United Kingdom. For very many years, it may truly be said that the Royal College was a mere appendage to a teaching school, and as such, improvement was impossible. Not long ago it escaped from this ignoble thralldom, and then attempts were made in earnest to introduce reforms in the education and status of the practitioner. But, as stated, every advance has only been achieved after a struggle, and it would seem that this kind of warfare must continue until at least a new generation of members obtain power, or the present generation takes a stronger and *more* decided stand than it has hitherto ventured upon.

The form the opposition has lately assumed has been upon the question as to the legality or power pertaining to the Royal College, in its endeavour to improve veterinary medicine; and on this ground the obstruction has been consistent and persistent. Threats of legal proceedings, prognostications of secession, discord, and disunion, have had such a powerful effect on the Council, year after year, that little good has been effected by the only body that can confer benefit or promote advancement. One cannot peruse the reports of the Council meetings from one year to another, without coming to the conclusion that the obstruction has been due to a very small number indeed of individuals, whose personal or pecuniary interests were not in harmony with progressive improvement, and that the Council was too timid and irresolute to defy them, and act for the welfare of all.

Whatever may have been the position of the Royal College previously, the recent Act of Parliament has placed it upon a new and a wider basis—one on which it is absolutely independent of these obstructionists who were, and are now, no friends to veterinary science in these kingdoms; and it is absolutely necessary that this changed position and enlarged function of the Corporation should be fully recognised by those who are responsible for carrying out the objects of the Royal College.

The Royal College of Veterinary Surgeons is constituted, by Act of Parliament, the body which is alone responsible to the public for the competency of those who are entitled to designate themselves members thereof; and this responsibility it must not, dare not, shirk. So long as it keeps on the path of improvement, and is determined that its licence to practise shall only be bestowed on those who are, by general education and professional training, fully competent to serve the public as qualified veterinary surgeons, it will have the countenance and support of Parliament and the confidence of the country—while its neglect to do so will not only endanger its own existence, but prove a source of inconvenience and loss, if not of peril, to the nation. Therefore it is that everything pertaining to the efficiency and proficiency of the aspirant to the Royal College diploma—whether it be in the way of general or professional education—comes within the purview and control of the Royal College, and it cannot neglect this without neglecting its duty.

The next part of its function is the protection, and the promotion of the well-being, of its members; and this is in itself a new duty imposed upon it, both directly and indirectly, by the Act referred to. Hitherto its usefulness has been, by the obstructionists, limited to examining students

for graduation, and this it has only been able to do in a very imperfect manner. Now, however, that the Royal College is in direct relations with the Government, and through it with the public, it can and must exercise the powers it possesses to protect and promote the interests of the profession to the fullest extent; so that, while acting as a guarantee to the public that those whom it licenses are in every way competent as professional men, it must insist that these shall be recognised and received as such, and be accorded the privileges to which those belonging to other professions can lay claim.

There may be those in the profession who are desirous that it should remain in the abject and almost helpless condition in which it has been kept for so many years; but we earnestly hope that the members of the Council will not be influenced by their threats or misleading statements. So long as the Royal College is determined to benefit the public by improving the efficiency of its graduates, it can safely and surely defy those who would paralyse its usefulness, or keep it as a mere machine to register the production of imperfectly educated practitioners.

INFECTIVE AND "CONTAGIUM" DISEASES AND PARASITES IN MAN AND IN ANIMALS.

THE REGIUS Professor of Medicine, Dr. Acland, lectured on this subject on Dec. 2nd, in the large lecture room of the Museum, Oxford. A numerous and distinguished audience assembled, including Sir G. K. Rickards, Dr. Liddell, Dr. Freeborn, Dr. Darbishire, Dr. Burdon Sanderson, F.R.S. (the recently appointed Professor of Physiology), Professor Bonamy Price, Professor Prestwich, Sir Wm. Herschel, Dr. Child, the Rev. W. B. Duggan, the Rev. J. Dodd, the Rev. J. S. Treacher, Mr. W. W. Fisher, Mr. A. Winkfield, Mr. J. O. Sankey, Mr. C. E. Thornhill, Sir Henry Dashwood, Mr. J. Richardson, etc.

The lecture was the first of two on the subject, this being a *general* statement, preliminary to a *special* discourse on the particular case of the liver parasite of sheep, by Mr. Thomas, M.A., of Balliol.

THE REGIUS PROFESSOR commenced by observing that he had no doubt it was within the knowledge of several who were present that the great surgeon, Sir Benjamin Brodie, sent a message to him from his deathbed, requesting him from time to time to deliver in Oxford such lectures as might seem useful to the growing popular opinion, on sanitary or medical matters; and it would also be within their knowledge that, acting on that request, lectures had been given there to large audiences, on subjects bearing upon the public health, in rural and in urban populations, and on institutions for the care of the sick, and many other kindred questions. He could not introduce the matter upon which he was about to speak more graphically, than by saying that he had received communications stating that the notice respecting that lecture was faulty in every particular, for that parasites could have nothing to do with contagion; that "infective" was a word that ought to have been "infectious;" and the expression "contagium diseases," if not actually bad language, was, at all events, quite improper. He hoped presently to give by a single illustration a clear reply to this mistaken criticism. There was a definition of contagion by one of the most philosophic of our scientific men, viz., Mr. Simon, which was this:—"Contagion is a term applied to the property and process by which in certain sorts of diseases the affected body, or part, causes

a disease like its own to arise in other bodies or in other parts. 'The Latin word 'contagium' is conveniently used to denote in each such case the specific material shown or presumed, in which this infective power ultimately resides. It might be, and in a certain sense was generally, a parasite ; it was probably always a living organism." He explained this by exhibiting a remarkable parasite from New Zealand—the *Sphoria Robertsii*. It was a fungus several inches in length, whose spores when established in the body of a particular caterpillar, in process of time entirely occupied and supplanted all its texture, and so brought the caterpillar to a slow but certain end. That one illustration showed graphically enough in what way a parasite might set on foot an infective process, by which the unfortunate victim of its energies might be destroyed. It was an infective process set on foot by the material contagium of a parasite, peculiar to this caterpillar. This cleared the way to the whole question before them. It might seem somewhat remarkable, that whereas the question of the nature of epidemic diseases had occupied the attention of mankind for 2,000 years, that the ideas concerning the nature of them were of the vaguest possible kind, and in many instances entirely inaccurate. That might be illustrated by saying that though Hippocrates was certainly one of the most acute observers in respect of the maladies which afflicted mankind, wrote fully on the subject of those diseases which seemed to pass like a wave over masses of the people, he did not seem to be aware, nor did it ever apparently occur to him, that any depended upon contagion. This contagion had been, however, in recent times, in various ways entrapped, exhibited, and experimented upon, so that through the labours of several persons, every one, almost, still living, many of the phenomena and facts concerning the nature of this infective power were as clear as any object could be exhibited to them on the largest scale. But how difficult had been the inquiry, how remarkable had been the process of obtaining this knowledge, was one of the points which he would now show them. One person was present there to whom a large part of the knowledge which they possessed on that subject was due. It was shown, in a great measure in this country, that contagion, as it was called, that was, this infective quality, was a "particulate" substance, that was, a substance that might be caught and measured. If this particulate substance were removed from the infected atmosphere, then it was proved that, in many instances, the power of infection or contagion was also entirely removed—in other words, that the poison of most diseases was no longer mysterious, but tangible and visible. In some diseases this was not so. The poison of Scarlet Fever was not yet certainly known. He had concluded that the best way to illustrate this difficult question would be by describing one disease not occurring so much in themselves, as in various genera and species of the brute creation. There was a disease designated Anthrax, which might be translated as severe boil or malignant pustule. That, however, imperfectly gave them an idea of what the nature of the disease was. On a map of the world, the chief centres of the disease in Siberia, Russia, India, Japan, Germany, Finland, France, Spain, Africa, North America, Brazil, Paraguay, and Chili, were pointed out, as it affected all domesticated animals, oxen and sheep, dogs and cats, guinea-pigs, mice, poultry, and game, and in the East dromedaries, elephants, and goats ; reference being made to the laborious works of Mr. Fleming in this part of the subject. It was a disease which, when once acquired, by contact with other animals or other causes, might carry off the victim in periods varying from a few days down to a few minutes. They would, therefore, observe this one factor, which he was anxious should be clearly understood—they might have a condition which would more rapidly or more slowly affect creatures of every kind, in every part of the world, with practically nearly the same result in all, viz., death. He would

not harass them with painful details, proper only for medical men and pathologists, concerning the various modes by which the cessation of life was produced : but he would rather proceed to show what were the circumstances which set up the disease. He would endeavour to trace a portion of the life-history, as it was called, of the organism by which it was so caused. There was discovered, not many years ago, in the different textures of animals dying of this infection a small structure, which he would presently show to them, now accepted as belonging to the vegetable world, although for many reasons positive distinctions as to the nature of the lower kind of living beings were to be taken with considerable reserve. These minute vegetable organisms were called Bacteria, and in this case *Bacillus Anthracis*. These Bacilli, when found in the textures of animals that died of the disease, consisted mainly of slender rods. These rods grew to a certain length—in an example he had about 1-3,000th of an inch in length, and 1-25,000 in diameter. They were then seen to have a tendency to divide, and in dividing to separate the matter contained within the envelope which constituted the filaments, and in the division were observed to carry off with it a portion of the within-contained living protoplasm. These filaments, as they grew, became entangled or twisted into a beautiful rope. (These points were all explained on diagrams drawn by Mr. Drummond, the Radcliffe artist.) All these structures, through the kindness of friends, Professor Lister, Professor Burdon-Sanderson, Dr. Sharkey, and his son, Mr. Theodore Acland, he would be able to show them presently under the high powers of the microscope. It might be asked how it came about that the spores which were now known to be the way in which the disease was communicated, were so universally communicable in every part of the world? They were cast off from the bodies of the unfortunate possessors of them; they might be buried with them; and brought again to the surface by worms, in the opinion of M. Pasteur, though this fact had lately been questioned. They dried up, they floated away in the air, and although he did not say that these particular germs had been caught in the air, or could be so exhibited to them, yet it could be shown that multitudes of spores of various kinds of Bacteria might be and are so caught. (This part of the subject was illustrated by an apparatus at work, arranged by Mr. W. W. Fisher, showing how the air in the theatre might be entrapped, examined, and Bacteria and other substances found in it subjected to the highest powers of the microscope.) The lecturer proceeded to deal with the very difficult question of how it had been that M. Pasteur, whose name they all knew, made the discovery which had created a great sensation throughout the practical as well as the scientific world, that by a certain cultivation, as it was called, of these Bacilli in nitrogenous solutions, or broths, he succeeded in depriving them of the virulent principle by which the disease was communicated. First of all, he should say that M. Pasteur, many years ago, made experiments upon the fermentation of beer, and he found, what was indeed well known, that fermentation of beer depended upon the growth and chemical changes produced by the small “Yeast plant,” the *Torula cerevisiæ*. He found by carefully observing its life-history that he was able to make certain deductions as to the reasons and nature of the chemical changes made in the alcoholic or acetous fermentations. At a previous period he had been engaged in studying the diseases of the silkworm, and in doing so he had observed many of the changes of which a parallel might be found in the disease of which he (Dr. Acland) was then speaking. M. Pasteur then studied the so-called cholera of fowls, and he found by a series of experiments that he could, through continued “cultivations,” extending to a hundred or more generations, produce modified or “attenuated” virus of almost any strength; the vitality of the plant was, in fact, diminished by exposure to oxygen. He (Dr. Acland) would on this occasion pass over

the full history of the nature of the discovery ; and summed up by saying that M. Pasteur, by a succession of splendidly-conceived experiments—wonderful partly from the scientific accuracy with which they were conducted ; partly by the ingenuity with which they were contrived ; partly by the patience which he for many years bestowed upon them—came to the conclusion that he could so cultivate the microbes of the Splenic Fever in sheep, that he could gradually deprive them of their virulence ; and in the end, as had been established by Jenner in the case of vaccination, he could so inoculate the animals which were amenable to the disease, so as to make them absolutely refractory against the disease in future. But now, he (the lecturer) was sorry that he was bound to say that some doubt had been thrown, within the last few weeks, upon the certainty and safety of this process as regards all varieties of sheep. He had applied to M. Pasteur's agent for some of the vaccine matter which he supplied for the inoculation of sheep against this disease, and of which great quantities are now prepared in M. Pasteur's laboratory. There were two lymphs to be applied by a first and a second inoculation. The first produced modifying effects, and then the second afterwards was believed to bestow entire immunity from the disease. The precise mode or preparation of these substances was not at present fully known. At the same time he (Dr. Acland) received a portion also of the virulent virus which was exhibited. Now, he was sorry to say that Dr. Klein, a most skilful investigator in England, upon using this vaccine, instead of producing the effect of immunity from the disease, had communicated it and had caused the death of sheep by the very matter which was supposed to give them security against Anthrax. All that could be said under these circumstances was, that the particular vaccine matter thus sold in France could not be considered to be of such a nature as to justify its application or trial by persons who were not scientifically educated for the purpose, for there were many niceties to be observed in several respects, into which he would not now enter. Upon receiving this information as to the doubt which was thrown upon the value of M. Pasteur's discovery—a doubt which Dr. Klein had communicated very properly to the Local Government Board—he felt it to be his duty to write to M. Pasteur ; and his answer on the subject was most interesting. It showed partly his confidence in the certainty of his own investigations ; partly the exceeding difficulty of the problem of procuring immunity in various races of animals (for the poison acts differently on different animals and different breeds), and partly it showed the entire candour and goodness of the man. He was anxious to obtain all the information that he could in England on the subject, and he sent to him some papers including one which he had read at Geneva, in which he had met many of the difficulties which had been pointed out to him, as to the perfection of this process. He said that there were now in France 400,000 animals which had been vaccinated against this disease, 350,000 being sheep, and 50,000 oxen or cows. The result of all these vaccinations had been, that there had not been above one sheep in 300 that had suffered in any way from it ; and as regarded cattle, there had not been above one in 2,000 that had been ill, in any sense, after the operation. Therefore, he himself felt quite sure that the results were entirely satisfactory, and he was quite confident in the full and ultimate success of the procedure. The loss to France alone has been by hundreds of thousands annually. The question was asked, "What is the nature and character and reason of these epidemic diseases, which go like a great wave over the world, from time to time?" In a work by Mr. Fleming, Veterinary Surgeon of the Horse Guards, they had a record of the chief epizootics in all periods of the world's history. They observed that certain diseases were very rife at certain periods, and that then they passed away. In this country Ague was one of these ; Leprosy was another. It was a very rare thing that they saw a case of Leprosy in

England, although Mr. Sankey had informed him that there was in Oxford at that moment the case of a person who had acquired it in India. One asked upon that, was it so, that diseases might decimate not only themselves, but animals inferior to them, at one period of the world, and disappear at another, and return? Was it so, that they could hope to see them entirely driven out of nations, and out of animals, by this or that protophylactic measure, as in the case of vaccination, whether Jenner's or Pasteur's? Was it so, that carelessness or sentiment might revive these plagues; was it that the follies of uneducated and thoughtless people should make it even a question possible to be asked, as to whether the plague of Smallpox, by reducing the severity of the vaccination laws, was to again be made to rush once more over the population? Did it not seem to be true, from the investigation of Professor Sanderson and others, that they had a key to the way of stopping a great part of the several plagues which came from without upon them, which were introduced into the organism, and which could be handled, and checked, and stopped by the means of scientific investigations which had risen up within the last twenty years? And was it not in a place like that their bounden duty to foster all biological and pathological study, that could increase this kind of knowledge, and see in what way these enquiries for the positive good of mankind and the brute creation, which was placed in a certain sense under their care and attention, could be brought to greater perfection than they had already been? He confessed the subject was one which seemed to him as worthy as any other which could by any possibility be carried on in this place; and he hailed with the utmost satisfaction the circumstance that Dr. Burdon Sanderson should be settled amongst them, to encourage by the weight of his great reputation, and direct by his trained scientific skill, all physiological and pathological studies in their highest departments. (Applause.)

The lecturer concluded by alluding to the astonishing series of changes by which decay and life alternate in a vast and never-ceasing cycle, and by a touching reference to the abilities and personal character of the late Professor Rolleston, who had fostered in turn, by his almost superhuman activity, almost every method by which the happiness and well-being of mankind could be increased, and whose work was now being continued and extended by Dr. Burdon Sanderson and Professor Moseley. Dr. Acland then announced that Mr. Thomas would describe on Wednesday, in a special and detailed manner, one instance of that which he had endeavoured thus generally to sketch.

After the lecture numerous examples of the *Bacillus Anthracis*, the *Bacillus* of tubercle in every stage, and other kindred objects, including a beautiful *Bacterium Lactis*, lent by Professor Lister, were thrown under very high powers. Professor Burdon Sanderson displayed fine photographs, by the oxy-hydrogen microscope, lent by Professor Clifton, of every stage of growth of the *Bacillus Anthracis*.

VETERINARY SANITARY SCIENCE IN INDIA.

AT very frequent intervals, communications reach us from India—chiefly from members of the Army Veterinary Department there—strong and full of complaint as to the absence of any provision for checking the ravages of deadly contagious diseases, and the hard work and poor reward accorded to the veterinary officers. It is needless to say that the Department in India is in a condition of serious discontent, and that few veterinary officers will remain there a day longer than they are compelled to. What with the

miserly allowance of pay, the severe work in an unhealthy climate, and the absence of all recognition for services rendered, their position is indeed much worse than it would be at home. Such a state of affairs cannot be to the advantage of India ; for if there is any department in that country that could more directly confer great benefits, it would be the institution of a well-organised body for dealing with contagious diseases of animals, and the improvement and proper management of all those domesticated creatures which go to form so large a portion of the wealth and working power in that country. The advantages of anything resembling in the slightest degree such an organisation India has never enjoyed, and until it is established the enormous losses sustained every year since the country came under the sway of the British Government, must continue undiminished, if they are not increased. Such neglect must tell seriously upon the financial and agricultural condition of India, and can have but one result.

As evidence of both grounds for complaint, we make the following extracts from two letters lately received ; they are ordinary specimens of what are sent us from nearly every part of that immense country. It may be mentioned that the letters are from two of the most competent, zealous, devoted, and hard-working veterinary surgeons in the Department :—

“I feel more than guilty of remissness in not having contributed anything to your Journal for such a length of time ; but, believe me, it is simply an impossibility. Mr. Meyrick will be able to tell you the amount of work which he had to do before leaving India, and when I say that it has daily increased, you will readily understand that I have my hands more than full. I can only say that I cannot go on long at this rate, for my health won't stand it. To give you some idea of the work, I have 201 horse and 146 donkey stallions. These are spread over twenty-three districts, which may be said to represent counties at home, and in these districts I have over ninety stands. These stands extend over a tract of country 500 miles from north to south, and more than that from east to west. None but selected mares are allowed the services of the horses, and it is my duty to inspect every one, and if suitable to brand them. Of these I have already 8,000 on the registers, and many more are waiting for me. Very strong representations have been made to the Government of India, showing the necessity for my having an assistant, but you can form no idea what we have to contend with. The reply was to the effect that they considered an intelligent native might do the work : or, in other words, a native with no veterinary knowledge was to go about the country inspecting mares, and deciding whether they possessed hereditary unsoundnesses. This intelligent native would also have to select stallions for the different classes of mares met with in this vast extent of country. These are the things which disgust us out here. Government has an idea that a man in India should be capable of filling any post, although he may have had no previous training. To give you an example ; an officer who had been employed during his whole service in the stud department, was, on the abolition of the studs, sent to Calcutta as superintendent of clothing. But sufficient about this. I am sending you a Civil and Military Gazette, in which you will see an article on the cattle fairs in the Punjab, and below it I have added a paragraph from next day's issue, giving an account of an outbreak of Rinderpest in the Sialkote district ; but it is not only in this district in which it exists ; it is prevalent in three or four more. The importance to India of the suppression of these epizootics is enormous. India being a purely agricultural country, should be protected more than many others ; still the veterinary profession is in no way utilised. The Punjab Government is the only one that possesses a veterinary surgeon ; but even there one man to superintend a tract of country the size of Germany, is lost. Mr. — is doing his utmost, but unaided ; and with no legislation

on the subject, his is very uphill work. Before he took up this appointment, I worked it for twenty months, and I can assure you it was heartrending to march through the country, and see the havoc caused by these diseases. I have frequently gone into a village in which 100 ploughs were at other times employed, and found that not a single head of cattle was left. To meet the requirements of this province alone, I have proposed to place a well-trained salutree in each lehisal or parish; the cost would not be much, and could easily be borne by the district funds. I have also drawn up a short Act, which would assist greatly; but with such an apathetic Government, I do not think there is a chance of its passing. The only way to get anything done is by agitating at home. If Mr. — and I could only find time, we might compile most astonishing statements.

“You would scarcely believe the small amount of recognition we receive out here; in fact, I do believe they are fast relapsing into their old belief that they can do without us. Umballa, Mian Mir, and Rawul Pindee, all important stations—the latter garrison consisting of 1 battalion R.H.A., 1 battalion R.A., 1 European cavalry regiment, and 1 Native cavalry regiment, also a large transport and commissariat depot, are actually without a single veterinary surgeon; and in the face of this, Government is so weak as to believe they can do with twenty-three fewer men. Our men out here are nearly all sick, and it is not to be wondered at; for whilst combatant officers are snug in their bungalows at 8 a.m. in the hot weather, veterinary surgeons are out till 11 and 12, exposed to the intense heat. We want a very strong P.V.S. out here, but I suppose until something is decided about this Indian Department no one will be appointed.

“I have now been out nearly six years, and very often I seriously think of asking to be relieved, so as to go where we are valued. My only regret would be to leave my work, of which I am very fond; but even this, I fear, will not keep me out long.”

A portion of the second letter is as follows:—

“I forward you a copy of a return showing the progress of cattle disease in the Sialkote District, which may perhaps be interesting to you. Please remember the numbers shown are only those reported by the native police constables, and probably represent about two-thirds of the actual number of deaths. Also consider that this is only one very small district of the Punjab, and you may form some notion of the enormous extent to which the disease prevails, and the return shows that about 1,200 cattle were attacked with Rinderpest, and of these more than half the number had perished.

“It is very extraordinary that at this time of day such a state of affairs should be allowed to exist; but so it is, and it is to be deeply deplored.”

SWINE PLAGUE.

A LETTER was read at a recent meeting of the Académie des Sciences from M. Pasteur, giving an account of his progress in some researches in which he is at present engaged in the district of Vacluse. He has gone there to investigate a disease of pigs, which, in one valley of the Rhone, has recently been fatal to 20,000. The disease is called “le rouge des porcs;” and M. Pasteur announces that he has discovered its cause to be a very minute organism, which in point of size resembles that of chicken cholera. It differs, however, in its physiological properties, since it has no action on fowls, but it is fatal to rabbits and pigs, especially to white pigs. M. Pasteur has convinced himself, by experiments, that one attack affords protection against another, and he has succeeded in inoculating pigs with organisms which have been weakened by culture, and in thus rendering these animals insusceptible.

This disease is, we apprehend, the Swine Plague with which we are painfully familiar in this country. We look forward with much interest to the results of Pasteur's experiments, and especially those in the direction of protection from the disease, and will keep our readers informed as to their progress. It is rather astonishing that nothing in the way of experimental protection inoculation has been tried in this country.

FRAUDULENT WARRANTIES.

THERE have been great advances made in veterinary science during the last forty years, says the *County Gentleman*, and when one remembers the old-fashioned farrier riding about the country and London, having a bag on his horse containing the most formidable-looking instruments of torture ready for the docking of a horse's tail, for firing his legs, and for bleeding, and compares him with the well-dressed man of the present day in the brougham, we begin to wonder at the change. Are these gentlemen of the present age far above their predecessors in practical and scientific knowledge? We believe they are in both respects, and more humane in the treatment of both horse and beast. The great cause of this is not far to seek, as the early education of veterinary men is much better attended to now than formerly, and the benefits derived from their college studies make them more competent for the work in store for them. But the object of our writing is not to dilate upon the work of the college or the benefits conferred by it, but to call attention to the questionable practices on the part of those who are bringing a most honourable profession into disrepute. We allude to a class of men who are mixed up in horse-dealing transactions. In the old days, if a horse was purchased privately, whether of a dealer or private gentleman, a written warranty was generally offered and accepted; but the animal is now open to veterinary examination, and the consequence is that many dishonourable members of the profession lend themselves to a practice which is a disgrace to the members of the Royal College of Veterinary Surgeons. We have often brought under our notice the transactions of these men, who for a commission from the low dealer are ready to give a certificate of soundness, but generally write the words, "to the best of my belief," and in cases of very palpable unsoundness are careful to remark that there is a slight so-and-so, which "I do not think will interfere with his or her usefulness." Within a short time the so-and-so develops into a serious lameness, and then the certificate is often put down to ignorance on the part of the vet., with no intention to deceive. Veterinary surgeons of more determined opinions will say at once, "I have examined, etc., etc., and consider the animal to be perfectly sound." This unprincipled man cares nothing as to the result, knowing that if the purchaser be a fighting man the dealer will not go to law in the end, but take back the animal. But how many purchasers would say, "I would rather give him away than go to law about a horse"—many, for the reason that the trouble is too great, or that they do not like the idea of its being thought that they know nothing of a horse. So unprincipled vets. and low dealers get off, and are ready to victimise the next comer with whom they may chance to have transactions. The remedy is really in the hands of purchasers, who should never go to a low dealer or employ a vet. who has the slightest suspicion on his character. The means for remedying the nefarious transactions we allude to should be in the hands of the Council of the Veterinary College, who should have the power of striking off the roll men who have done things which are injurious to the character of the profession they have entered. We are quite sure we shall

have the approval of all honourable members of the veterinary profession in making these remarks, and we would add that it would be much to the advantage of the profession if they would at once take steps to purge their body of a set of men, many of whom, under cover of being considered first-rate practitioners, are guilty of acts for which men in a lower position in the profession have been placed in the dock.

Reviews.

DE L'EXTERIEUR DU CHEVAL. Par MM. A. GOUBAUX et G. BARRIER, Premiere Partie. (Paris : Asselin et Cie. 1882.)

The French are generally considered by outside people, and especially by the sport-loving British, as a non-equestrian race ; and yet no country has produced so many classical works on the anatomy and physiology of the horse, and on the just proportions which the different parts of its structure ought to bear to each other, in order that a given amount of speed, strength, or beauty should prevail. Since the days of Bourgelat and Lafosse, the number of treatises which have appeared on what is termed by our friends across the channel the "exterior of the horse," are very numerous ; and nearly all of them, written by amateurs or veterinary surgeons, display an amount of enthusiasm for the subject which is rather remarkable, while all attempt to fix the theory of proportions on a truly scientific basis.

In England it may be asserted that nothing of the kind has been attempted, though we proclaim and pride ourselves upon being the most "horsey" people on the face of the globe. True, Professor St. Bel, when he introduced the teaching of veterinary medicine and surgery from France into this country ninety years ago, also tried to inculcate a taste for the cultivation of the study of external form, which had been so successfully taught him by the great master Bourgelat, and the fruits of which are still existing in the monograph he published on the proportions of the famous racehorse, Eclipse. But with the premature death of St. Bel—a serious calamity for veterinary medicine in England—this study came to an end, and it has never been resumed.

Of all the works on "Exterieur" which occupy our bookshelves—and we fancy the list is pretty complete, so far as France is concerned—there are none which can at all compare with this, the first part of which lies before us. As might have been anticipated from the scientific position of Professor Goubaux, the distinguished director of the Alfort Veterinary School, and the talented professor of Anatomy and Exterior at the same school—M. Barrier—the treatise they have so far produced is absolutely exhaustive on the subject, so far as our knowledge at present extends.

Written in a simple style, and apparently sufficiently elementary to be read with ease and abundant profit by the amateur or student, it is yet a work of the highest scientific value, inasmuch as ordinary observation is put to the severe test of measurement and experiment, and these again are made to furnish scientific deductions, many of which have all the charm of novelty and ingenuity, while they are formulated in clear and precise terms.

This portion of the work is devoted to what are designated "Preliminary Notions," and to the study of the "regions of the body," and "proportions." These different sections are dealt with in a masterly manner, the basis on which they are treated being always that furnished by the teachings of anatomy, physiology, and animal mechanics. In the "study of the regions" we have been particularly struck with the novel and original views propounded, and especially in the subsections treating of the neck, croup, ribs, and chest.

The beauties, defects, blemishes, and vices of the horse are all dealt with in a clear and yet scientific manner, and numerous good illustrations are given to assist in making the meaning of the authors still clearer; while to illustrate the theory of proportions and the motor powers of typical horses, a table is given of racing performances, which is also valuable as a reference to those interested in turf exploits.

From this short notice it will be seen that the work is one of no ordinary character, and is worthy alike the high reputation of its authors and the long-established fame of the Alfort Veterinary School. All who have had to do with the production of the work are to be congratulated on their success thus far, and we confess to a feeling of impatient anxiety for the appearance of the second part, when we shall be able to give the entire book a more detailed notice.

THE HORSE IN MOTION, AS SHOWN BY INSTANTANEOUS PHOTOGRAPHY, WITH A STUDY ON ANIMAL MECHANICS. By J. D. B. STILLMAN, A.M., M.D., Executed and Published under the auspices of LELAND STANFORD. (London: Trubner and Co. 1882).

There could not be a better companion work to the "Exterieur du Cheval" than the handsome quarto volume, published by Trubner, of Ludgate Hill. In the Notes and News columns of this Journal not long ago, there appeared a notice of an interesting lecture given by Mr. Muybridge at the Royal Institution, on "Animals in Motion," in which the representations of movement were shown by photography. The work just issued is in reality the substance of the lecture *in extenso*, and a most interesting and important addition it is to such works as that of Goubaux and Barrier, as well as those on animal mechanics, animal painting, and animal locomotion. The book is a veritable monument of skill, patience, and ingenuity in the photographer's art, as it chiefly consists of a large series of photographs of the horse, taken while moving at different paces—from the walk to a sharp gallop, cantering and jumping. There are also photographs of other animals taken during progression, these, as well as those of the horse, being represented in every phase of one act of a certain movement. These representations are the production of instantaneous photography; twenty-four cameras having been employed, and placed in line at intervals of a foot from each other, and so cleverly managed that, no matter how rapid the pace, each was capable of producing a clear and exact photograph by exposure of the exceedingly sensitive plate for the one five-thousandth part of a second.

The result is rather startling and bewildering, as it pretty well upsets everything that has been taught and exhibited with regard to the way in

which a horse moves its limbs during progression, and particularly as to the function of the fore and hind limbs. These undeniably correct pictures also prove that artists generally—in fact always—represent horses in utterly impossible attitudes. The manner in which certain movements are executed is made perfectly clear by these admirably arranged and printed pictures. The act of walking, for instance, about which the most diverse opinions have been entertained by horsemen and veterinary physiologists, is lucidly demonstrated in a manner which admits of no doubt.

In addition to the very extensive series of plates, there are many explanatory woodcuts, while Dr. Stillman gives an excellent description of the locomotory muscles, and valuable remarks on movement having reference to the discoveries developed by means of the camera.

This wonderful book—for it is full of wonders, so far as the revelations it contains are concerned—deserves a more extended notice than we can afford to give it; but we trust that veterinarians and horsemen, as well as artists and physiologists, will patronise it. It may be mentioned as an evidence of the labour its production necessitated, that it required an outlay of 50,000 dols. (£10,000), a sum which was generously contributed by Governor Stanford, who owns the Palo Alto Stud Farm, where Mr. Muybridge toiled so long and so successfully in experimenting and photographing.

THE QUARTERLY JOURNAL OF VETERINARY SCIENCE IN INDIA AND ARMY ANIMAL MANAGEMENT. (Bangalore: Stephenson and Co.).

It is a bold venture at any time or place to launch a new veterinary periodical in the English language, but perhaps the most courageous instance we are acquainted with is now before us. The editors of this "Quarterly" (C. Steel, F.R.C.V.S., Inspecting Veterinary Surgeon, Bombay Army; F. Smith, M.R.C.V.S., 12th Lancers; and J. H. Steel, M.R.C.V.S., Royal Artillery), are all stationed in India, and, as many of us know, are enthusiasts in their profession.

We can see no reason why, under their zealous and able direction, the journal should not prove a success. Though the number of veterinary surgeons in India is small, yet there are many officers of mounted corps in that country who take an interest in matters equine, and will become subscribers. Besides, such a publication appeals to the profession outside of India, for even in the first issue there is much matter of general interest which will be perused with pleasure and profit by those who care to know what is occurring beyond their own sphere of action. The number of articles contained in the table of contents is large, and all are good, though some of them are more instructive and valuable than others. The only requirement discernible is a little more attention to press-work; but this is more a matter for the reader or printer, perhaps, than the editors.

We wish the Quarterly Journal every success, and while we congratulate the editors on their first appearance, we trust they will not be dismayed or discouraged if their task does not meet with prompt reward all at once.

Proceedings of Veterinary Medical Societies, &c.

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE seventy-third quarterly meeting of this Association was held in the Medical Institute, Hope Street, on November 10th, 1882, the President William Leather, Esq.) in the chair.

There were present: Professors Williams and Hunter, Edinburgh; Messrs. Elam, Morgan, Reynolds, Bell, Moore, Kitchin, W. Wilsby, Donald, Morris, Hurndall, T. Leather, Butters, Brizell, Bain, Liverpool; Greaves, Faulkner, Hopkin, T. Taylor, W. A. Taylor, Locke, Ingham, M. J. Roberts, Manchester; Whittle, Worsley, Wilson, Nantwich; W. Woods, jun., Wigan; Lloyd, Denbeigh; and Stone, Little Hulton.

Dr. Rushton Parker, Professor of Physiology, School of Medicine, Liverpool, Messrs. Muirhead and Edwards, and several other gentlemen, whose names did not transpire, were present as visitors. Letters, regretting their inability to attend, were received from Professor Robertson, Messrs. Fleming, Lewis, Barnes, Storrar, Wolstenholme, and Barron. The minutes of the previous meeting were read and confirmed. The following gentlemen were elected officers of the society for the ensuing year, viz., Mr. R. S. Reynolds, President; Messrs. W. Leather, J. W. T. Moore, and E. Faulkner, Vice-Presidents; Mr. G. Morgan, Treasurer; and Mr. A. Bain, Secretary. On the motion of Mr. Whittle, a cordial vote of thanks was accorded to the retiring officers, to which the President briefly replied. Mr. ELAM proposed Mr. Wilson as a member of the Association; seconded by Mr. MORGAN, and carried. Mr. MORGAN proposed Mr. Welsby; seconded by Mr. BAIN, and carried.

Mr. MOORE nominated Messrs. J. Sutcliffe, Hurndall, Liverpool; Mr. FAULKNER nominated Mr. Brizell, Liverpool; and Mr. BAIN nominated Mr. Butters, Liverpool, and Mr. Lloyd, Denbeigh, as members of the Association.

Professor WILLIAMS, in the course of his lecture on "Louping-ill," remarked that it was denied that a mycelium could grow in the body; but he had proved, to his own satisfaction, that a mycelium could and did develop in the blood. In the disease known as "Louping-ill," or "Trembling," the animal has violent clonic spasms, and he had named it *Chorea Paralytica Ovis*. It prevailed particularly on the western slopes of Scotland. It was found in all altitudes, on all kinds of soil, and close to the sea-shore. The disease was to be found in animals on certain grasses of a certain age. Geological formation had nothing to do with it, provided we found certain other conditions. The disease is more fatal during cold easterly winds, more especially if associated with inclement weather; but the weather has certainly nothing to do with the causation of the disease. The disease occurs principally in the latter end of spring and early summer months. He had not seen the disease except where the tick was found. It was not common tick or "Red." It was found entirely embedded in the skin, so much so that it could not be removed unless by injuring or destroying it. It was a parasite that lived on the blood of its host. In the Isle of Skye there are two outbreaks of the disease, occurring in spring and autumn, and there are also two appearances of the tick, the disease appearing with it. Lambs that have not eaten grass take "Louping-ill," proving that the disease is not communicated by, or due to, grass. The tick conveys the organism into the sheep, may be, from the ground. The main symptoms are trembling, automatic movements, amaurosis, violent spasm, and, if frightened, the animal drops down utterly helpless, in many instances dying immediately. In some cases there is complete paralysis, in others paraplegia, or hemi-

phlegia. In all cases the appetite is good to the last. One noticeable symptom is distinct elevation of the nose.

Post-mortem.—The organs in some cases appear quite healthy, in others a gelatinous formation surrounds the spinal cord; it is non-vascular, of a very pale colour and jelly-like consistency. The organism has been found in the gelatinous formation, but not within the nervous matter. Patches of this gelatinous matter are to be found on various parts of the spinal cord, sometimes in lumbar region, and sometimes on medulla oblongata, etc., thus giving rise to the various forms of paralysis noticeable. Have never found anything inside or outside of the brain, but sometimes effusion takes place in the ventricles, due to the anæmic condition of the animal. In every case where the sheep were dying, the ticks were dying, and in every tick (whether on a diseased sheep or not) the same organism as in the sheep.

At the conclusion of the lecture, Professor Williams showed some beautiful microscopic specimens of the organism, and, taking advantage of the opportunity, showed specimens of *Bacillus anthracis*, and various other interesting specimens, being assisted by Professor Hunter, who manipulated the lime-light apparatus. During the time, many interesting questions were asked Professor Williams by the members, but as the lecture theatre was in darkness no notes were taken. A very hearty vote of thanks was accorded by acclamation to Professors Williams and Hunter, to which both gentlemen briefly replied.

The TREASURER proposed that the usual donation to the children's hospital, and the gratuity to the hall-keeper be given, which was seconded by Mr. WHITTLE, and carried.

The usual vote of thanks to the President brought one of the most interesting and instructive meetings of the Association to a close.

CENTRAL VETERINARY MEDICAL SOCIETY.

THE monthly meeting of this Society was held on the 7th December, 1882, at 10, Red Lion Square; Mr. J. Woodger, President, occupying the chair.

The other Fellows present were Messrs. T. Burrell, F. W. Wragg, C. Sheather, G. R. Dudgeon, J. Hall Brown, F. G. Samson, G. A. Banham, H. W. Caton, A. Broad, J. Rowe, G. Gray, J. Broad, Arthur Broad, T. Moore, W. Hunting, H. J. Hancock, and T. G. Chesterman.

Renal Calculus.

Mr. T. BURRELL exhibited a renal calculus, and said: Mr. President and Fellows,—This specimen, to which I have much pleasure in inviting your attention, was removed from an aged chestnut mare, that, to my certain knowledge, had been in almost constant work for about ten or twelve years without showing any symptoms of renal disease. She had, however, been subject to severe lameness, which I diagnosed as due to Rheumatic Arthritis; this was always relieved by a dose of purgative medicine and a day or two's rest. With the exception of these attacks, which occurred about every six months, the mare enjoyed good health. During the last two years the lameness increased, and latterly the animal, after lying down, could only rise with difficulty. I then advised that she should be destroyed, but at that time had not the remotest idea that any disease affected the kidney, neither had the attendant noticed anything abnormal either in the quantity or quality of the urine. This calculus, with the kidney containing it, was forwarded to me; a number of small cysts were situated on the surface of the latter, caused by obstruction of the uriniferous tubes; the calculus, as it lay in the pelvis of the organ, was coated with mucus. I have not noticed, in

any veterinary work with which I am acquainted, further allusion to this matter than the statement of the fact that calculi are sometimes found in the kidneys, no train of symptoms which would lead us to suspect their presence being described. I imagine that the formation of calculi is influenced in a great measure by the food which an animal takes; some descriptions of food, more especially roots, lead to the deposition of earthy phosphates. But the principal cause of these calculi is, I believe, that the horse is not allowed sufficient water; they are fed upon dry food, and kept at almost constant work, so that the skin acts very freely, with the consequence that sufficient fluid is not available to retain all the lime salts in solution. I think the practice (not perhaps so common now as formerly) of stinting horses in drink is most injudicious and reprehensible.

In the human subject calculi are often associated with the gouty diathesis; but this fact is not of great clinical importance to us, as uric acid is then the principal ingredient, not the carbonates, as is the case in our patient. Here, however, I think stimulating food is responsible for the tendency to calculus formation. In man the urine is slightly acid, and the formation of a cystic carbonate of lime calculus is accounted for by supposing that the urine retained in the bladder becomes decomposed, and earthy salts precipitated. In our patients the urine is almost always alkaline, as I can affirm from frequent examination; so that we have already present the condition which predisposes to the formation of carbonate of lime calculi. I am afraid that we dose our patients too freely with alkaline medicines; carbonate of ammonia, too, is very frequently given to horses in large doses, when the system is already loaded with urea; these substances being of very similar composition, I think the choice of drug is then anything but judicious.

I shall be pleased to hear expressions of your opinion concerning the connection between Rheumatism and calculus, and as to the manner in which these bodies may be formed. I am inclined to think that they are much more common in the horse than we imagine, but that they escape notice because, the ureter being so large, they pass readily downwards into the bladder. That they are thence ejected with the urine I believe to be no uncommon fact; I have known stones as large as horse-beans to be thus voided.

Mr. BROAD commented on the interesting nature of the specimen and description given, and instanced the cases of renal calculi quoted in Morton's work on the subject. The symptoms noticed were, occasional abdominal pain, tenderness on pressure over the loins, straddling gait, blood or mucus with the urine, and the negative evidence that no abnormality was found in the bladder or urethra.

Mr. WRAGG remarked that he had seen renal calculi much larger than the one before the meeting.

Mr. WOODGER regretted that he could not add much to the discussion from practical experience, as attention was so seldom called to these cases. He had found cystic calculus of rarer occurrence than formerly.

Tumour of Colon.

Mr. WRAGG showed a portion of colon from a horse which was taken to his infirmary on the 6th, and died the next morning, although it had been able to work till twelve o'clock on the night of the 5th; Peritonitis was diagnosed. About six gallons of serum were found in the abdomen, and there was much effusion beneath the peritoneum, especially around the kidneys.

The portion of intestine exhibited had a great amount of effusion under its peritoneal coat, and on the mucous surface was a soft, sarcomatous tumour,

about three inches in diameter, which was the centre of an area of acute inflammation.

Several Fellows questioned Mr. Wragg upon points of the case, and referred to corresponding occurrences.

Concussion of the Brain.

Mr. HANCOCK laid before the Fellows a horse's brain with a small portion of bone attached to its base; in this situation was a large blood-clot, and much hyperæmia of the meningeal membranes; a very small fracture was found in close proximity to the pituitary fossa. The brain was taken from an aged chestnut mare. She had repeatedly suffered from Colic, and had an especially severe attack three weeks ago; she recovered, and continued well till Friday last, then, while being drenched for her usual complaint, she fell over backwards, striking her poll; on reaching home she was put in slings, and in about two hours violent excitement came on, followed by coma, the mare **boring her head** into the corner. She died at eight o'clock the next morning. Nothing abnormal was discoverable in the condition of the abdominal viscera. Mr. Hancock's surmise that cerebral disease existed before the injury gave rise to some discussion.

Mr. BANHAM urged that it was unprecedented for cerebral injury, or inflammation, to give rise to any symptoms simulating abdominal pain, coma or frenzy being the usual manifestations. He thought that if the mare suffered from brain affection, it was during the last attack, at which time a vessel might have given way.

Mr. WOODGER said it was evident that the immediate cause of death was hæmorrhagic effusion at the base of the brain, possibly caused while the mare was knocking herself about in pain. He referred to a similar case he had seen, in which the injury resulted from a blow on the frontal bone, given with an iron bar; the bone was fractured beneath the cerebrum, some of the vessels being ruptured; the clot found in this situation was very large.

Mr. HANCOCK wished to add that, although the symptoms of brain mischief were most marked during the second illness, he noticed that, after the first attack, to which allusion had then been made, the gait of the mare was very unsteady and staggering, also that when this attack came on she fell while at work. Although she walked home immediately after the severe fall she had on his premises, she never appeared to recover consciousness.

ALFRED BROAD, *Hon. Sec.*

YORKSHIRE VETERINARY MEDICAL SOCIETY.

A SPECIAL meeting was held at the Queen's Hotel, Leeds, on Wednesday, the 13th December, to consider if any, and what, action should be taken in order to reduce the large number of ineligible persons who are applying for registration as existing practitioners under the new Act. The President-elect, Mr. Joseph M. Axe, was unanimously elected to the chair, and there were also present:—Messrs. M. E. Naylor, J. W. Anderton, J. H. Ferguson, J. Tatam, B. Smith, F. Danby, J. Nettleton, Peter Walker, J. E. Scriven, G. Bowman, G. Whitehead, W. F. Greenhalgh, H. Cooper, H. Carter, G. Metcalfe, and the Secretary.

After considerable discussion, Mr. AXE proposed, and Mr. ANDERTON seconded, the resolution, "That in the opinion of this meeting all candidates for registration should produce their day-books and ledgers, in order to show that they have continuously practised veterinary medicine and surgery for five years," etc. Carried unanimously.

Mr. NETTLETON proposed, and Mr. WALKER seconded, "That all candi-

dates should have attained the age of twenty years, and have practised for five years subsequently." Carried unanimously.

The SECRETARY proposed, and Mr. NAYLOR seconded, "That it is the bounden duty of all members of the College to object to ineligible persons." Carried.

It was unanimously expressed that a great hardship had been inflicted upon the profession by allowing these persons to assume the title of veterinary surgeons.

WM. BROUGHTON, *Hon. Sec.*

THE NORTH OF IRELAND VETERINARY MEDICAL SOCIETY.

A MEETING of this Society was held on December 14th at the Thistle Hotel, Belfast. The President, Mr. Thomas H. Simcocks, M.R.C.V.S., Drogheda, occupied the chair. The other members present were Messrs. Chambers Belfast, and Doris, Cookstown (Vice-Presidents); Messrs. Dunlop and Giffin Belfast; Kernohan, Ballymena; James Dunlop, Downpatrick; Browne, Omagh; Sandford, Moneymore; Thompson, Lurgan; Murphy (visitor), Armagh; Creighton (visitor), Belfast; and the Secretary, Portrush.

Messrs. Stringer, Sherwood, and Finlay (students), and a few other gentlemen were also present as visitors.

Apologies for unavoidable non-attendance were received from Messrs. Simpson, Portal Inspector, Warrenpoint; Bradley, V.S., Newry; Mathews, Portal Inspector, Belfast; and T. Drummond, V.S., Dundalk.

The minutes of the last meeting were read and confirmed.

The SECRETARY then read a paper on "*Asthma, or Broken Wind*," which was well received and spiritedly commented upon by nearly all the members present.

ASTHMA OR BROKEN WIND.

The subject-matter of aforesaid paper may be summarised as follows:— In the definition of the disease, exception was taken to the theses of recent authorities, who state that inspiration is performed with ease, while the expiratory act has two apparent efforts. According to MM. Langeron and Laulanie, of the Toulouse Veterinary School, who experimented on normal and abnormal respiration by means of the pneumograph, the inspiratory act is difficult and interrupted, as well as the expiratory act. In studying the pathological development of the disease, we must consider what a prominent part is played by the free use of an artificially preserved diet such as hay, and the great tax a superabundance of this fodder is on the stomach, whereby the nervous energy of that organ becomes weakened; and that the derangement is subsequently transmitted to the bronchial tubes and air-cells by the fibres of the *par vagum*.

The primary effect of the irritation on the bronchi is to cause a diminution in their calibre, with subsequent paralysis and thinning of their walls, leading to rupture and emphysema. Broken Wind is altogether a disease of progressive development, and the morbid anatomy is modified by the stage at which the disease has arrived when we examine *post-mortem*.

Atonic Dyspepsia, being a usual concomitant, is produced by a withdrawal of some of the arterial blood-supply, which supply is partially diverted from the stomach to the lungs and muscular tissue when horses are called on to perform hard or fast work soon after repletion. The gastric secretion is vitiated in consequence, and the food often undergoes fermentation, and we have gases formed.

Hereditary taint is a predisposing cause, and gross feeding is sometimes an exciting cause, and sometimes an effect. The baneful effects of too much hay are strikingly apparent on horses in this country. Change of locality and change of air have a decided influence on asthmatic symptoms.

In the treatment of Broken Wind a good and properly adjusted diet is absolutely necessary : a food composed of one part each of bruised beans and bran, and two parts of bruised oats, moistened with thinly boiled linseed, is a very nutritious and agreeable fodder.

Oleaginous substances, such as linseed mashes, and oil, and lime-water, are very useful. *Lichen Hibernicus*, or Carrageen Moss, could be advantageously substituted for linseed.

Of medicinal agents, the essayist found Belladonna the most reliable drug in this disease, also a combination of Arsenic and Nux vomica he found very beneficial. In the discussion which followed different opinions were very freely expressed.

Mr. JAMES DUNLOP approved of a special muzzle being applied, and of Arsenic and Nux vomica medicinally, but thought that Belladonna was contra-indicated.

Mr. GIFFIN believed that emphysema was present in all cases, as he never examined a horse's lungs, *post-mortem*, in which rupture of the air-cells was not clearly visible ; he believed that emphysema was a cause, and not an effect of Broken Wind ; he recommended the practice of watering horses before feeding them, and approved of Belladonna as a remedial agent ; he did not agree with the idea of the disease being hereditary, but believed it was always caused by errors in feeding.

Mr. KERNOHAN thought we could have Asthma without emphysema, and referred to a case in which he saw the disease arising from an accident ; although he had not tried Belladonna, he thought it would be useful ; he found straw much better than hay in these cases, but why it was so—being equally bulky—he should like to know.

Mr. J. B. DUNLOP agreed generally with the essayist, and referred to the good derived from the discussion of such common subjects as the present ; he believed that emphysema was present only in the advanced stages of the disease, which generally resulted from irritation of the bronchial tubes, such as we get in colds, etc. Indigestion, he considered, was an effect and not a cause ; the wheezing noise heard on auscultation was due to mucus in the bronchial tubes ; he did not approve of medicine in the treatment of the disease, but that most practitioners found sedatives either temporarily or permanently useful.

Mr. MURPHY said that the change in the asthmatic symptoms in different localities was produced by the different properties of the water ; he found hard water very injurious in the disease, and that it should be softened by boiling. The horses should be bedded on sea-sand and sawdust ; he believed that in 9-10th cases the disease was caused by derangement of the pneumogastric by improper feeding ; he saw a horse badly broken-winded one morning and all right next day.

Mr. DORIS did not believe the disease was hereditary, and that it was not caused by bronchial irritation from colds, etc.

The PRESIDENT thought the difference in opinion arose from mistaking cause for effect and *vice versa*, and that Broken Wind in nine cases out of ten was due to affections of the air-passages. He considered Broken Wind should be applied only to those cases in which we had rupture of the air-cells. In "setting" broken-winded horses, shot had a mechanical effect merely, which was due to its weight on the abdominal muscles.

The subject was so very freely discussed that two cases which were to have come on the *tapis* by the President were unavoidably postponed.

On the motion of the PRESIDENT, seconded by Mr. DUNLOP, a cordial vote of thanks was accorded the essayist.

Mr. GIFFIN then alluded in complimentary terms to the recent honour

conferred on the President by his being elected at the head of the poll to a seat on the Council of R.C.V.S.

The PRESIDENT suitably acknowledged the compliment, and explained several matters in connection with the "Veterinary Surgeons Act," particularly with regard to the registration of unqualified practitioners.

A Committee was then formed for the purpose of taking the matter into consideration, and for taking other necessary steps.

Messrs. Thompson, V.S., Lurgan, and Sandford, V.S., Moneymore, were proposed and seconded for membership, and will be elected at next meeting.

A cordial vote of thanks to the Chairman brought a very successful meeting to a close.

H. R. BRADSHAW, *Hon. Secretary.*

ROYAL (DICK) VETERINARY COLLEGE.

(Continued from p. 435, vol. xv.)

WHEN Professor Dick first began his class, veterinary medicine and surgery existed as an *art*, but it could hardly be said to have a place as a *science*. And so, doubtless, it was with the teaching. The prescribed period of study was hardly sufficient to teach what was to be done and how to do it. There was no time, while instructing students in the *art*, to teach them the equally important *science*, which explains the principles on which the *art* depends. We are told that Professor Dick's method of teaching was to begin with an outline of the anatomy of the different systems, and then to follow this up with an account of the diseases to which these systems were liable. In this he was for a number of years unassisted, but many of the lecturers in the medical and surgical schools of this city, with a generosity deserving of the highest praise, threw open their classes to veterinary students. Professor Dick was thereby enabled, even in the early days of the college, to turn out graduates of a much higher stamp than would otherwise have been possible. As time went on, and the number of students increased, Professor Dick acquired the assistance of other lecturers on veterinary subjects, and new branches of study were added from time to time; but instruction in more than the mere outlines of these was impossible.

In these times many excellent men were sent out from this school, but that was due to the genius of Professor Dick, and *in spite* of the system under which he was compelled to carry on his labours. No other veterinary teacher ever had the power of Professor Dick to inspire his pupils with enthusiasm for their profession. And it was this spirit, caught from their master, which afterwards brought so many of his disciples to the forefront.

It was only in 1876 that the prescribed period of study was extended to its present length. The curriculum now extends over three winter sessions of five months each, and two summer sessions of two months each. This was a great improvement, but the old difficulty was far from being removed, for along with the extension of time came new branches of study, rendering more than elementary instruction in many of them impossible. In this school courses of lectures, combined in nearly all cases with practical instruction, are given on no fewer than nine different branches of study. Each of these may be said to be indispensable, but the time is inadequate, and it is to be hoped that ere long it will be further extended.

The graduates of to-day have immeasurable advantages compared to those of twenty years ago. To take but one illustration. Twenty years ago the students received no *practical* instruction in the use of the microscope. Now they are taught practically not only how to apply the microscope in the

examination of the normal tissues and organs of the body, but, in this school at least, they are taught how to examine for themselves those microscopic tissue changes in which we find the true explanation of most morbid processes.

The importance of this lies not so much in what is taught within the college walls as in the power that it will confer on graduates when they go out into the world to carry on investigations in a field in which the older graduates were powerless.

The present course of education is a great improvement on that of fifty years ago, but it still has its weak points. For these, however, an apology is hardly necessary, when the adverse influences are considered. It is obvious that to maintain a veterinary school, fully equipped with a well-paid staff of teachers, would be attended with no small expense. But the number of students necessary to meet the demand for practitioners at home, and in those of our Colonies that have not already veterinary colleges of their own, is comparatively limited; and, while fees are moderate, the sum derivable from this, the only source of income, must always be small. There is no encouragement to develop the teaching by adding new members to the staff, but rather the reverse; for such an addition can only be made by reducing the salaries of the existing teachers. It is this cause, more than any other, that has made our progress so slow. There is this to be said, however, that for whatever progress we have made, the credit is all our own, for no helping hand has been held out to us by Government.

Veterinary science has attained a more honourable position in most of the Continental States. In these, however, it has not been left to its own resources, but has been fostered by Government, and has had its education promoted by large grants of money. The intelligent liberality of these foreign States is in striking contrast to the short-sighted parsimony of our own Government. Thus France maintains, at an annual cost of several millions of francs, three fully-equipped veterinary schools. In the German Empire the annual grants for the same purpose amount to the large sum of £14,000. With a corresponding liberality, veterinary education receives State aid in Austria, Italy, Holland, and Belgium.* It is greatly to the national discredit that this country has persistently withheld support from a science which, unassisted, can make only slow progress, but which, if developed, would speedily confer the most astounding benefits on the community. The science is of the first importance to a country like ours, inasmuch as it is concerned in the conservation of the large amount of national wealth represented by our domestic animals. It is its province to diffuse among agriculturists a knowledge of those laws of health which should be observed in the management of their flocks and herds. For, just as in human medicine, so it is in our practice—the greatest achievements in future will probably be in the way of prevention and protection rather than of cure. Besides these, it is its more obvious duty to grapple directly with the many diseases to which our domestic animals are liable, to cure them where possible, or to inculcate the measures taught by experience to be the most serviceable and profitable for stamping out epidemics which, when unchecked, proved such an enormous source of dead loss to the nation.

All this is so obvious, that none will deny the important bearing of veterinary medicine on the national wealth. No less important, though perhaps less obvious, is its bearing on public health. It is a sad reflection that in this, and probably every other civilized country, there exists, at the bottom of the social scale, a considerable section of the population who, even when wages are highest and the necessities of life cheapest, can barely provide

* It is the same in Norway, Sweden, Denmark, Spain, and Portugal.—ED. V. J.

themselves with that amount of animal food necessary to maintain the human frame in a state of health. These persons could not be said to be starving, in the ordinary acceptation of that word, but their systems are in a state rendering them an easy prey to disease that would not be fatal to individuals properly nourished. The number of our inhabitants who are in this state rises with every rise in the price of animal food, and everything that diminishes our food supply must in this way influence the death-rate. An outbreak of Cattle Plague would not produce in the public mind the same alarm as an outbreak of Small-pox, but it is unquestionable that the visitation of Rinderpest which we had in 1865-66 was the indirect cause of death to thousands of our population. But the well-being of our domestic animals has other and more obvious bearings on the health of mankind. We now know of not a few important diseases directly transmissible from the lower animals to man, and one need only mention the important subject of Parasitism to show how human and veterinary medicine are intertwined.

Indeed, our claims on State aid are unanswerable; but they were not recognised in the infancy of the science, when assistance was most needed; and there is no prospect that they will be recognised now.

An application was recently made for a Government grant to promote veterinary science, but it emanated from a quarter and in a manner that render its non-success a matter for slight regret. The application was made by the Council of the Royal College of Veterinary Surgeons. It is a corporate body, whose individual members are the qualified practitioners who hold its diploma. Its affairs are managed by a Council of thirty, elected by, and from among, its members. It was incorporated in the year 1844, and it is now the only degree-granting body in this country. It is, in short, the examining body, and that is its one important function. A deputation of its Council recently waited upon the Lord President of the Privy Council, and presented a memorial which was in several respects remarkable. It opened by referring, at considerable length, and in terms to which no exception can be taken, to the supreme importance of veterinary science to a nation like ours, and pointed out that, in contrast to other European States, our own had failed to recognise this, or, at least, had done nothing in a pecuniary sense to promote veterinary education in this country. And then there occurred the following paragraph: "The four veterinary schools in England and Scotland are, it may be said, private institutions, each belonging either to an individual, or being the property of subscribers who receive the value of their subscriptions in advice or medical treatment of their animals."

If this paragraph was introduced with any other intention than to discredit the schools, that intention is not apparent. But, moreover, the statement is grossly inaccurate. This institution is the property neither of an individual, nor of subscribers who receive the value of their subscription in advice or medical treatment of their animals, and those who made the statement were aware of this, or may be convicted of the alternative charge of inexcusable ignorance.

A little further on the memorial stated that "since its incorporation in 1844 the R.C.V.S. has provided the country with nearly 4,000 qualified practitioners."

If that statement is not inaccurate, it is at least, in the connection in which it stands, utterly misleading, and prefers a claim which is simply monstrous. What share had the R.C.V.S. in providing these 4,000 practitioners? Merely that of certifying, by means of its diploma, that these 4,000 practitioners, as turned out by the schools, had received an education that fitted them to practise. If the providing of these 4,000

practitioners was a feat for which the nation owes a debt of gratitude, then only an infinitesimal portion of that debt is due to the R.C.V.S.

And last, and most remarkable, how did that enlightened body, which credits itself with having furnished the nation with its veterinary practitioners, and which charges itself with the exclusive duty of improving veterinary education, purpose to apply this Government grant? In erecting in London, at an estimated expense of £6,000 or £8,000, a building in which its Council of thirty members might be luxuriously accommodated on the four or five occasions on which they must meet in each year to transact its business!

I am very far from having any intention to discredit the influence of the R.C.V.S. within its own sphere. But its influence must always be secondary to that of the schools. Its sphere of action has been accurately enough defined in the charter of its corporation, and it will be best to confine its operations within that sphere. An important duty devolves on it in carrying out all that relates to the examining of students, and in fixing the minimum standard of qualification to be demanded of its graduates. It has to sift annually those students who, having completed the prescribed period of attendance at the schools, are desirous of being licensed to practise. In this way a grave responsibility rests on it, and it may be convicted, out of its own reports, of having failed to discharge this duty adequately. The annual report of its Council for the year 1880-81 says that "Serious complaint has been made, both within and without the profession, for a number of years as to the lack of knowledge of practical details on the part of some of the younger graduates."

Now, if this complaint is well founded, it reflects great discredit on the Examining Board of the R.C.V.S. It was a wise arrangement that took the power of granting degrees out of the hands of the institutions engaged in teaching. It is their duty to afford, to the utmost of their resources, an opportunity to students to acquire a thorough theoretical and practical knowledge of the duties of the profession. Even if this opportunity be afforded, there will always be a number of students who (some from inaptitude, but more from wilful neglect) will be comparatively ignorant at the end of their curriculum. But the Examining Boards exist for the express purpose of finding these men out, and if it be discovered that such men are let loose on the public, the logical conclusion is that the Examining Board is inefficient, and the sooner its reformation is set about by the R.C.V.S. the better. A logical conclusion, however, was not likely to occur to the Council of the R.C.V.S., which, by a majority of its members, decided to revert to the all-but-obsolete system of apprenticeship. A bye-law was therefore enacted ordaining, "That in and after the year 1884 no candidate for the diploma of membership of the R.C.V.S. shall be allowed to present himself for the final examination unless he shall have given sufficient proof that he has served a pupilage of at least one year with a duly-qualified practitioner, and that during that time he has conducted himself satisfactorily."

A minority of the Council protested that the charter of incorporation does not confer the power to enforce apprenticeship, and the highest legal authorities having subsequently expressed the same opinion, the bye-law had to be cancelled. But this apprenticeship is an object on which the Council has set its heart, and it is therefore preparing to move for a supplemental charter to give it the necessary power. To this application it will be the duty of the schools to offer their united and uncompromising opposition. In former times, a considerable number of young men desirous of entering the profession were induced to bind themselves as apprentices to veterinary practitioners, and this frequently for a period of two or three years, the practitioner at the same time exacting from them a fee which was often

enormous, considering that the advantages were rather on the side of the master than of the pupil. The latter had no basis of anatomy, physiology, or the other necessary branches on which to build a knowledge of the diseases that came under his notice, and such men were, on entering college, not one whit better, and often worse, than if they had never been apprenticed. As this fact became known, the custom of apprenticing pupils declined. At the present day it has all but disappeared, and with it has departed a considerable source of income to the practitioners who were party to it. It is dying from natural causes, and the supplemental charter is an attempt at its resuscitation. Although the system was never compulsory, there has been enough to test it, and I challenge its advocates to prove its advantages by an analysis of the prize lists, of the pass-lists, or of the relative success in practice of recent graduates.

By this same supplemental charter, an extension of power is sought in two other directions, in both of which it is desirable to confine the R.C.V.S. within its present limits. The Council is ambitious to have a hand in the management of the schools, and the supplemental charter is to give it the desired power. If there were any likelihood that this power would be granted those connected with the schools might well feel uneasy. At present the Council exercises an indirect influence on educational matters by its control and regulation of the examinations, and the way in which that influence is occasionally exercised makes one thankful that its powers in this direction are so limited. The Council elect the members of the Examining Board, and until lately it seemed to act on the correct principle that an examiner ought to have a thorough knowledge of his subject—in other words, that to examine on physiology required a physiologist, on chemistry a chemist, and so on. By the charter of incorporation, however, it is enacted that no one who is a teacher at one of the Veterinary Colleges can be an examiner, and therefore the examiners on such subjects as botany, chemistry, and physiology were chosen from the medical profession, and were almost always professors of the special subject on which they were appointed to examine. And this was an arrangement which inspired both students and teachers with complete confidence in the Examining Board—a confidence which has now been destroyed. Some enlightened members of the Council of the R.C.V.S. said that this was a stupid arrangement. They said, in effect, that it was a pity to see the examiners' fees going into the pockets of medical men, and that it was nonsense to maintain that no one should presume to examine on a subject unless he is able to teach it. These views commended themselves to the majority of the Council, which last week elected a new Board for Scotland, composed exclusively of veterinary surgeons. Upon that step comment would be superfluous. But along with this ought to be mentioned the other extension of power to be sought through the supplemental charter. At present examination fees amounting to £10 10s. are exacted from each student. That is the maximum sum allowed by the charter of incorporation. Power is now sought to exact a fee of thirty guineas—a sum which falls little short of the cost of his professional education.

These may be taken as examples of the manner in which the Council would treat matters of education; but it would be wrong to suggest that its members are actuated by any other motive than an honest desire to promote the best interests of the profession, though their conduct at times lends itself more readily to another construction.

The profession, it is admitted on all hands, is hardly what it ought to be, and the Council of the R.C.V.S. is, it must be confessed, thoroughly representative of the profession. From that fact we may draw the conclusion that its manner of looking at things will change as the profession advances, and in the meantime we may be thankful that its powers are so restricted.

I fear that much of what I have said may seem to have only a remote interest to those whom I am supposed to be specially addressing. I should most certainly enlist your attention by professing to tell you how you may best obtain success in your examinations. But I would like you to have a higher incentive to study than the mere desire to obtain the legal qualification to practise, and you shall find it if you will believe that not only your success in that respect, but the amount of success obtainable in after life, is determined by your conduct during your studentship. If you are wasteful of your time and neglectful of your opportunities, you will make failure in your examinations almost certain ; and should you by a stroke of ill-merited good fortune obtain your diploma, your chances of being able to impose on a public that is every day becoming more discriminating will be small indeed. But if, on the other hand, you act up to a determination to pursue your studies with diligence, and to profit to the utmost of your power by the course of instruction which is here afforded, you will pass your examinations with credit to yourselves and your teachers ; you will have laid that foundation of knowledge that will render its further pursuit both easy and pleasurable, and you will have formed the habits that are most likely to lead you in after life to a position of professional eminence. Be diligent in your studies, and diligence will become an easy habit. Now is the time when the very acquirement of knowledge will develop your faculties, and make its further acquisition easy. Cultivate your talents, and knowledge will increase like money accumulating at compound interest.

You have elected to enter a profession in which, while there is not a little to discourage the beginner, there is more to incite him to effort. Some of the sciences have reached a stage where to those about to enter them it might seem that little remains to be discovered. In any case, that is likely only apparent ; but we, at any rate, are very far from having reached that point. To those who are ambitious to make a name for themselves in the field of original research, there is probably at the present time no profession which offers such allurements as our own.

Principal MCCALL (Glasgow Veterinary College), in proposing a vote of thanks to Professor McFadyean, endorsed what the lecturer had said in regard to the treatment which the veterinary profession had experienced at the hands of the Royal College of Veterinary Surgeons. In regard to the new Examining Board, he was inclined to think such a step a great mistake. He was disposed to think that the number of veterinary surgeons able to examine in botany and chemistry, for instance, was not numerous, and he thought it was the feeling of the public that it was to their advantage to be associated with members of the medical profession who had done them a great deal of good. It was, he thought, a very ungrateful action on their part to refuse the services of medical gentlemen on the Examining Board.

Principal WALLEY, in proposing a vote of thanks to the Chairman, wished to state, as a member of the Royal College of Veterinary Surgeons, that while he gave his best thanks to the members of the medical profession for their past services to the veterinary profession, he at the same time thought that the old Scotch saying, that "every herring should hang by its own head," should be recognised by them.

ROYAL AGRICULTURAL SOCIETY.

AT the Council Meeting held on December 6th, 1882, Colonel Kingscote reported the recommendation of the Committee, that a grant of £250 be given for carrying on veterinary experiments during the ensuing year ; £50 out of this sum to be devoted to the continuation of experiments on Foot-and-mouth disease at the Royal Veterinary College. The Committee had received from

Dr. Roy a report on the series of experiments conducted by him at the Brown Institution on behalf of the Society, and they recommended that it be published in the *Journal*. The Committee had met seven times, and made seven reports, and they recommended that the following be the Committee for the ensuing year : General Viscount Bridport, Lord Moreton, Marquis of Stafford, Sir M. White Ridley, Sir J. Thorold, Mr. G. M. Allender, Mr. A. Ashworth, Professor Brown, Hon. W. Egerton, Mr. George Fleming, Mr. S. P. Foster, Mr. M. J. Harpley, Colonel Kingscote, Hon. C. T. Parker, Professor Robertson, Mr. G. H. Sanday, Dr. J. Burdon Sanderson, Professor Simonds, Mr. R. Stratton, Mr. W. H. Wakefield, and Mr. Jacob Wilson.

This report was adopted.

Obituary.

MR. E. A. EVANSON ASHE, M.R.C.V.S., died at his residence, Richmond Lodge, Blackrock, Cork, on December 8th, aged 56 years. He graduated in 1874; though at the time of his decease he had practised in Cork for thirty years, and gained a high reputation not only as a successful practitioner, but also as a horseman and patron of the turf. A local paper, in announcing the melancholy occurrence, remarks :—" Mr. Ashe was a man of renowned ability in his profession, and, like the late Mr. Robert Olden, V.S., obtained Professor Dick's medal for superior knowledge during his collegiate career. In his younger days he was passionately devoted to the pastimes of hunting and racing, and a pluckier or more finished horseman than he was it would be difficult to find. As an owner of good racehorses he was at one period notorious, and there are many who can draw to their recollection the meritorious performances across country of Jolly Tinker and Broadway Swell when carrying his black and gold jacket."

We have to record the death at Collingwood, Melbourne, Australia, of Mr. EDWARD J. A. YORSTON, M.R.C.V.S., which took place on the 5th November last, in the twenty-sixth year of his age. Mr. Yorston graduated so recently as July, 1880.

The death is also announced of S. L. RAGG, M.R.C.V.S., Sheffield, who graduated in 1875; as well as that of J. MARSHALL, M.R.C.V.S., Omagh, Ireland, a graduate of 1868.

Denmark has lost an excellent representative veterinarian by the death of Professor H. C. B. BENDZ, of the Copenhagen Veterinary School, at the age of seventy-six years. Bendz was an enthusiast in his profession; for though he graduated in surgery, in the Copenhagen University, in 1830, and served as a company surgeon, then as battalion surgeon in an infantry regiment, and graduated as a Doctor of Medicine in 1836, in 1837, he became a teacher in the Danish Veterinary School, and laboured for the remainder of his career in the ever-interesting field of veterinary science. So early as 1833, he attracted attention by his dissertation on Jacobson's Anastomosis and Arnold's Ganglion, which was translated from the Danish into several European languages. In 1847 he published a large work in two volumes on General Anatomy, and in 1853 a Handbook of Anatomy and Physiology of the domesticated animals. Several other scientific works were subsequently produced, and for these, as well as for his services to medicine in general, he received Russian, Swedish, and Danish honours. In 1853 he, in conjunction with Professor Bagge, edited the *Tidsskrift för Veterinär-Medicin*—a journal which has done good service in Denmark and Sweden, and is now so ably conducted by our worthy colleague, Professor Lëndquist, of the Stockholm Veterinary School.

Parliamentary Intelligence.*House of Commons, November 30th, 1882.***THE LOSS OF HORSES IN EGYPT.**

SIR A. HAYTER, in reply to Mr. Brown, said that in consequence of the loss of horses during the Egyptian campaign, it had been thought advisable to take an additional sum for cavalry remounts. That sum had been included in the total amount mentioned by the Prime Minister in his statement. The Household Cavalry horses were now reported to be fit for duty. They had only lost thirty horses per squadron, or ninety in all. The Field Artillery horses were for the most part also fit for duty. The mortality among the horses with the regiments remaining in Egypt was not exceptional, and it was due to climatic causes.

Notes and News.

PRESENTATION.—On the occasion of the closing of active operations in connection with the stamping out of the Pictou Cattle Disease in Nova Scotia, Professor McEachran, the Veterinary Inspector in charge, was the recipient of a testimonial in the shape of a handsome Nova Scotia gold chain, accompanied by the following address, which was presented by Mr. George Caswell, on behalf of himself and fellow officers:—"To William McEachran, Esq., M.D., Veterinary Inspector, Pictou. Dear Sir,—On the closing of the operations in connection with the stamping out of the disease among the cattle of this county for this season, we, the undersigned officers employed under you in the work, beg to ask your acceptance of the accompanying chain as a small token of our esteem and regard for you personally, and also as an expression of our appreciation of the efficient manner in which you have conducted the measures for the stamping out of the disease. We would also express our thanks to you for the many acts of kindness and consideration shown to us personally by advice and assistance in the carrying out of our various duties, and would further testify of the uniform kindness and consideration with which you have dealt with the farmers and others with whom, in the discharge of what were often unpleasant duties, you have had to deal. Wishing you a safe journey homeward, and prosperity for the future, we beg to remain, yours sincerely, George Caswell, Joseph Grant, James Grant, John D. McQueen, Alexander Fraser, Lauchlin McInnis, Peter McInnis." Professor McEachran replied in suitable terms, thanking them for their handsome expression of good will. He said that while the active operations were for a time suspended, he thought that it was the intention of the Minister of Agriculture to recommence active operations early in the spring, and hoped that another season would see this country completely rid of the plague which threatened ruin to so many.

NEW VETERINARY SCHOOLS.—The Russian Government has instituted a new Veterinary School at Lemberg, Poland. Dr. Seifmann, of the Kazan Veterinary School, has been appointed Director, and Drs. Baranski and Kaydi, Professors.—In September last a Veterinary School was opened in connection with the Harvard University, United States, and Mr. Lyman, M.R.C.V.S., was appointed Director or Principal Professor. We believe it is intended to have a regular course of instruction for veterinary students extending to three years. The subsidiary branches to be studied will be taught in the other departments of the university, while every opportunity will be afforded for veterinary theoretical and practical instruction. Under the

supervision and direction of our friend Mr. Lyman, and with such an excellent connection, this new school should prove a certain success, and greatly benefit the country.

RABIES IN RADNORSHIRE.—There is at the present time a very serious outbreak of canine madness in part of the district between Knighton, Presteign, and New Radnor. It appears (writes Mr. R. Harding, of New Radnor, to the *Hereford Times*) that some two months since an unknown and unsuspected dog visited the district, and is now known to have bitten several others. No particular notice was taken of this at the time, until these animals in their turn became affected, and now there is distinct evidence of a more widespread outbreak than is generally supposed; indeed, it is impossible for some time yet to know what mischief has been done. It is within his personal knowledge that a heifer has certainly become affected with rabies, though she was not known to have been bitten; upon examination, however, the distinct mark of a bite is to be seen on the nostril. Within the last twenty-four hours two persons have gone to him—the one bitten by an affected dog, the other by one whose condition is not at present known. Both these persons were at work when the dogs came along, and, almost unknown to them, snapped them in the hand. A correspondent of the *Standard* says: “During the past few weeks no fewer than fifteen dogs have gone mad in the district of New Radnor, and large numbers of dogs have been bitten. A dog has just gone mad at Hanbor, one at the Vron, and one at Gladestrey; all have been killed. The magistrates have issued stringent orders, and the police are enforcing those orders to the utmost. Mr. Roberts, of Bodland, has lost five cattle worth £100, supposed to have been bitten by a mad dog. A farmer near New Radnor has suffered very heavily; it is said that he has already lost eight or nine valuable cattle. A number of dogs affected with rabies are known to be at large, while several that displayed symptoms of madness were destroyed last week. There is little abatement in the excitement produced in Radnorshire by this epizootic, and there is but faint hope of the dreadful malady diminishing at present.

ETIOLOGY OF GLANDERS.—In the Berlin Imperial Health Office investigations have been made into the etiology of Glanders, which have resulted in the discovery of the micro-organism of this disease. The newly-discovered organism was subjected to “pure” cultivation for a series of generations, after which the disease was produced in a horse by inoculation with the germ thus cultivated. The investigations were carried out under the direction of Dr. Loeffler and Professor Schütz, of the Berlin Veterinary School. The discovery is of immense importance.

Correspondence, etc.

PROFESSIONAL AMENITIES.

SIR,—I observe in the December number of the *VETERINARY JOURNAL* a letter by Mr. C. Cunningham, of Slateford, in which he says, with a sneer, in reference to some remarks of mine, that my humility and diffidence are scarcely worth notice. Now, that is probably Mr. Cunningham’s method of refuting a proposition from which he dissents. It is not, however, mine, and if you will grant me sufficient space, I shall point out one or two of his most glaring inconsistencies.

He says: “I am not one of those who think that veterinary surgeons cannot examine veterinary students, even in such subjects as botany, chemistry and physiology.” Then a few sentences farther on he adds: “I cannot but sympathize with the professors, when the successors of Professors Crum, Brown, and Turner, are an ex-lecturer from a rival school and a young Man-

chester gentleman whose name in connection with physiology has never to my knowledge been heard of." Now, this last sentence is distinctly equivalent to the statement that no one should be appointed an examiner on any subject unless he is eminent in that subject; and that I cordially accept as a sound principle. But will Mr. Cunningham be good enough to furnish us with a list of veterinary surgeons eminent as chemists, physiologists, or botanists, from which we may select our examiners? He evidently believes that such exist, although neither Mr. Vaughan nor Mr. Taylor is one of the number. I am more or less familiar with the names of the eminent chemists and physiologists of our own country, and I have in vain tried to recollect among these the name of a member of our own profession. But since I read Mr. Cunningham's letter, I happened to refer to a recent volume of the Transactions of the Highland and Agricultural Society, and I there stumbled upon a possible explanation of the ground taken up by Mr. Cunningham. In the list given of the Society's Veterinary Examining Board, which recently terminated its functions, I find the following: "Physiology and Histology, C. Cunningham, Slateford." Truly Mr. Cunningham is endowed with much *humility*, and this is a striking exhibition of it. I hope that he will overcome his natural *diffidence* and inform us in what department of physiology *he* made his name famous.

Again, he says of modern veterinary students, that, with the exception of "*a few* bright, clever young fellows and *some* hard-working students," they are capable of improvement. Is this to be taken in its literal sense? and if so, has Mr. Cunningham attained in his own estimation that pinnacle of perfection where there is no room for further improvement? Or is it Mr. Cunningham's clumsy way of sneering at the average veterinary student? and does he mean that he is a creature very much inferior to what Mr. Cunningham was when he left the walls of his *Alma Mater*? That style of speaking and writing is too common at the present time, and generally comes most glibly from those who should be silent on the subject. I have known examiners of a breadth of professional and general education to which Mr. Cunningham has not a title of a claim express their astonishment at the professional knowledge acquired by veterinary students within so short a period; and after considerable experience as a student in University classes of more than one faculty, I believe that, for intelligence and industry, veterinary students of the present time need shrink from no comparison.

I heartily concur in Mr. Cunningham's denunciation of what he calls "*book-anatomists*," of which detestable class examples are sometimes thrust into the examiner's chair. But why does he inconsistently draw the line at anatomy? Is the sham not as execrable in chemistry or physiology? May Mr. Vaughan not be correctly described as a *paper* chemist, or Mr. Taylor as a *paper* physiologist? These gentlemen may, prior to each examination *cram* into their own brains a string of ill-digested questions and answers, but for them to pose as chemists or physiologists is beneath contempt.

Then Mr. Cunningham is much exercised because the new Examining Board for Scotland comprises no Scotch practitioners, and the grounds of his anxiety are, to say the least, ludicrous. He draws the picture of a student—the son or pupil of a Scotch practitioner—coming before his English examiner, to whom even the pupil's language is perhaps unintelligible. I suppose Mr. Cunningham thinks that our prelections at the Scotch colleges are delivered in the native dialect. Then he further paints the unfortunate pupil's rejection, because the peculiar methods of treatment that he has been taught are totally different to those followed beyond the Border. Surely this is the veriest drivel, and not worthy of a serious reply! Which of the Scotch colleges imparts instruction of this peculiar nature? Does he forget that the Principal of the London Veterinary College is a Scotsman and a Scotch

graduate, while the Principal of the Dick Veterinary College is an Eng'ishman and a graduate of the London School? Does he forget, moreover, that Scotch students form only a small proportion of those attending the Scotch college, and of these quite an insignificant number are sons or pupils of veterinary surgeons?

That Mr. Cunningham's complaint is justifiable most impartial men will admit, but on totally different grounds to those taken by him. If Scotch practitioners can be found of equal eminence with those from the sister country (and this is undeniable), then it was a most unreasonable slight to the former that they were passed over when a Scotch Examining Board was being appointed. The nationality of the Examiners is a matter of no concern to either students or teachers, but the unwarranted indignity will be a cause of irritation to Scotch veterinary surgeons, who might naturally enough aspire to the honour. Indeed, one does not need to read far beneath the surface of Mr. Cunningham's epistle to see that this is the true cause of his petulance. Viewed in this light, his attitude is most undignified, and proves him to be singularly destitute of that equanimity essential for the office which he covets.

I shall conclude in Mr. Cunningham's own words, by hoping that "you will excuse my trespassing so much on your space. If in my remarks I have hurt any one's feelings *undeservedly*, I am sorry for it."

I remain, yours, etc.,

JOHN MCFADYEAN.

Edinburgh Veterinary College,
12th December, 1882.

SIR,—The very peculiar nature of Mr. J. W. Hill's *reply* to my previous communication necessitates my asking space in the Journal to clear myself of supposed culpability.

Mr. Hill commences by saying that my critique was *unsolicited*, and was a *display of questionable taste*; now, I quite agree with Mr. Hill's first charge, for I never even hinted that I had been solicited to review his work; but having glanced over its contents, I thought myself quite justified in calling attention to what I considered most egregious errors; and I still maintain that I kept strictly to facts. As to the *questionable taste* which Mr. Hill fancies he discovers in my communication, I simply note that "that is merely a matter of taste," and, besides, the truth is at times the reverse of palatable. Mr. Hill will perhaps allow to me to ask if *he was solicited* to write the critique (on Dr. Crisp's article on Rachitis) which appeared from his pen in the *Veterinarian* for April last? The taste displayed in that critique must have appeared very questionable to Dr. Crisp.

Mr. Hill must be aware that his book was not published until the end of September last, and I have advertisements in my possession for two months *prior* to that, setting forth that the appendix was to contain "wood-cuts and coloured plates," so that Mr. Hill's assertion to the contrary is simply not true; and his wonderful (but quite unintelligible) *exposé* of myself falls to the ground, for the simple reason that I confined my concluding remarks to the work "as advertised." By the way, is Mr. Hill aware of the real meaning of the word *exposé*?

I am certainly much obliged and highly flattered with Mr. Hill's kind offer to become a subscriber for any work that I may issue on Bovine Pathology; but I beg to assure that gentleman that, if ever I do publish, I shall most unquestionably never have recourse to collecting subscriptions from people thirteen months before publication (*vide* Mr. Hill's advertisements). My cheque in payment of book was forwarded 25th August, 1881, and I received the book (immediately on its publication) 29th September, 1882.

Mr. Hill's puerile offer to return my money is altogether beneath any notice, being quite a refreshing example of very questionable taste !

Having thus far premised, I will now embrace the opportunity of offering a few more *notes* on Mr. Hill's *magnum opus*—"Bovine Medicine and Surgery." And first of all I note that it is pre-eminently a "book of extracts," fully three-fourths of its contents being copied from other writers on analagous subjects ; there are extracts extending from a few lines up to ten whole consecutive pages, and of these lengthy extracts there are a great many ! Now, it is no doubt a bad thing to depend entirely on one's own ideas, but without doubt it is equally as bad, if not worse, to publish such a work as that under review with scarcely one-fourth of original matter in it ! With what relish can any one open even a handsome volume only to find it full of compilations from other works already perused ? And not only this, but some of the extracts are actually repeated word for word, as, for example, an extract from *Rainard* which will be found exactly similar at pages 315 and 340. There are also between twenty and thirty of the articles on various subjects composed entirely of extracts from other writers, without a single original idea or observation from the author. So much for Mr. Hill's (original) literary abilities, anent which I may observe that compilation and originality are generally acknowledged to have some slight difference !

In Mr. Hill's preface I find that—"Information derived from the shrewd unprofessional observer often assists the professional attendant." The truth of this original observation will be but too obvious to any one who may glance at the numerous formulæ given in our author's pages, where *English* and *Latin of every description* are thrown together in such a way as would confound any common dispensing chemist ; such prescriptions are a disgrace to our profession, and only tend to render us ridiculous in the eyes of the dispensing druggist ; in fact, they plainly bear the impress of owing their origin to unprofessional observation and ability (?). If Mr. Hill cannot overcome the mystery of Latin case-endings, he ought to write out his prescriptions wholly in good old English. If I mistake not, Mr. Harold Leeney, M.R.C.V.S., Brighton, in the *Veterinarian* for December, 1880, drew attention to a similar error in the prescriptions in Mr. Hill's "Diseases of the Dog ;" but Mr. Leeney's hint seems to have fallen on ears deaf to any sort of friendly advice or instruction. "Where ignorance is bliss 'tis folly to be wise !"

The composition of several of Mr. Hill's prescriptions also savours just a little too much of the unprofessional nostrums once so common in the days of the defunct cow-leech : reference to our author's pages will prove the truth of what I say.—Yours, etc.,

A. E. MACGILLIVRAY.

Banff, N.B.

SIR,—Will you allow me, as a veterinary student, to make a few remarks on a recent publication which has been offered to us as a text-book on Cattle Pathology, and against which, seeing that it is utterly unfit for the position claimed for it, I consider we have a grievance ? I refer to "Hill's Bovine Medicine and Surgery." About Mr. Hill's manner of writing, it would, perhaps, be unbecoming in me to speak ; yet I cannot help pointing out that such a crude and involved style as is evidenced by the following quotations, is hard to parallel in any work claiming to be a scientific treatise.

Page 264. "Treatment, if adopted, would, if arising from inflammatory action, be antiphlogistic."

Page 427. "If custom is to decide such cases, it is but of little use having a Society for the Prevention of Cruelty to Animals—a society whose aim it is to protect from unmerciful hands some of the noblest works of creation, and one which England has justly cause to be proud of."

Page 594 (speaking of Torsion in Castration). "The testicle being exposed, and the cord and vessels embraced in the steel clams, the latter are grasped in the torsion forceps and maintained with a screw."

These three quotations, which were taken at random, require, I think, no comment. The author speaks of his "experience in morbid anatomy and inferentially of his capabilities as an anatomist and comparative anatomist." I shall endeavour to show that if a student at the examination table displayed such a plentiful lack of knowledge of these subjects, as is indicated in the volume under consideration, he would most assuredly be relegated to his studies for further instruction.

First, then, with regard to morbid anatomy. On page 21 we read that in the third stage in Pneumonia "Suppuration commences—in other words, the lung-structure breaks down." I have been taught that in this stage, instead of the lung structure breaking down, the exudate breaks up.

Page 23 contains the extraordinary announcement that "Contagious Pleuro-pneumonia is a sub-acute disease, having its location in the interlobular exudation of lymph."

Opposite page 32 is a plate to show the lesion in Pleuro-pneumonia. A wedge-shaped piece of lung is represented, and in the thickened interlobular tissue are scattered objects, like red corpuscles, the meaning of which I hope is quite evident to other readers; to me I confess they convey no meaning, and there is no explanation given in the text. This plate and some others in the book are marked "original," which I take it is quite an unnecessary care.

On page 32 a statement is made, which is repeated in the chapter on meat inspection, that the marbled appearance of the lung is altogether peculiar to Pleuro-pneumonia. I submit that in Sporadic Pneumonia in the ox a similar marbled appearance is seen.

Here is a unique sentence from page 33 (still alluding to Pleuro-pneumonia): "Bands of white fibrin of various degrees stretch in every direction; in other words, there is interlobular exudation or effusion of albumen or fibrin, separated from the colouring matter of the blood, into the connective areolar tissue of the pulmonary lobules, which are themselves compressed or hepatized." Shade of John Hunter, how may this be interpreted?

The 205th page states that "Determination of blood to a part results in stagnation or gathering together of the corpuscles."

Certainly the *affluxus sanguinus*, or determination of blood, may lead to stasis, if it be followed by inflammation, but I hope that this "determination" is not always attended by such serious consequences, or alas for beauty's blush!

On page 250 we are informed that to examine urine for albumen, we are to use the microscope, and to observe cylindrical or tube-like bodies (coagulated albumen); the following necessary caution being added: "At the same time, in examining urine for the presence of albumen, it must be borne in mind that its discovery and apparent quantity will depend upon existing circumstances." Quite so.

On page 281 the urine is said to be "of a high temperature in Gonorrhœa."

Perhaps the most extraordinary statement in this extraordinary book occurs on page 403, where the author says that a medical man, a friend of his, had expressed the opinion that "there was no such thing as Milk Fever, that the disease so termed was caused by a small portion of placental membrane being conveyed through the circulation and *deposited on* the brain." The author adds that "this theory, however, has not been practically demonstrated." That doctor was a funny man.

On page 464, and again on page 465, in describing the symptoms of

Ophthalmia, it is stated that "the cornea is traversed with engorged blood-vessels." This in a non-vascular structure is, to say the least of it, remarkable.

I was unaware, till I read it on page 554, that the ox was susceptible of inoculation by the Glanders poison, and that when the disease was contracted by the large ruminant, symptoms were presented similar to those seen in the horse. Pus, on page 554, is explained to be "a quantity of matter, the result of dead, disintegrated, and dissolved textures."

In a lucid arrangement of tumours which appears on page 557, Sarcomata are classed as non-malignant growths.

Perhaps I have said enough to indicate what "my experience of morbid anatomy" warrants the author in putting in a work designed as a text-book for the veterinary profession.

A few quotations having reference to the knowledge of anatomy displayed, and I have done.

Chapter III. commences with a description of the ox's heart, and a view is given of that organ with the principal blood-vessels, and in spite of the fact that the anterior aorta is absent in the ox, we have a large one present in the drawing. On page 119 we read that, among others, the "arteries most frequently injured are the metacarpal branches of the femoral, or gluteal, and the metatarsal."

The vulva of the cow is described on page 321 as having "a superior commissure, which is very acute, and an inferior commissure, which is more rounded and obtuse; it lodges the clitoris."

The haw, it is explained on page 472, is a "fold of membrane." Most people are agreed that its composition is fibro-cartilage, covered by the conjunctiva; in another place the haw is said to be extravasated and the conjunctiva injected.

On page 505 a very curious mistake occurs. A drawing of the hind-quarters of a calf is taken from Cobbold. In the original a muscle is represented which, from its attachments, can be no other than the triceps abductor femoris, but is called by mistake the vastus externus. Our author has copied drawing and mistake—the muscle is vastus externus still.

A description of Mumps appears on page 562, and the statement is made that the disease "consists of inflammation of the parotid gland, the salivary glands being frequently involved." I wonder what the author considers the function of the parotid to be.

Considering how little original matter is contained in this volume (out of twenty-six and a half pages on Pleuro-pneumonia, for instance, about twenty-one are copied from other authors), I think the inaccuracies, not to say egregious blunders, of which the author has been guilty render this treatise quite unworthy of our support, and, indeed, its perusal might make us regret that such a volume could emanate from a Fellow of the Royal College of Veterinary Surgeons.—I am, yours,

Edinburgh, Dec. 11, 1882.

A STUDENT.

THE BOARD OF EXAMINERS.—AN ANSWER TO MR. C. CUNNINGHAM.

DEAR SIR,—I, for one, look upon the communication from Mr. Cunningham on the above subject, in last month's Journal, as a gross insult to the lately-elected Board of Examiners, and also to the Council of the R.C.V.S.

If Mr. C. had been elected, I suppose everything would have been right—in his estimation, at least; but on what grounds he expected to be I utterly fail to see. Has any one ever heard of his name in connection with chemistry, toxicology, or anatomy? I think very few ever heard of it at all before he wrote the sarcastic article in question.

In the fifth section of his communication, he says :—" If I had the honour of being an examiner in horse or cattle practice, and a student were to tell me that he would use as many drugs as some practitioners use, that his shelves would groan under a load of bottles, drinks, and balls, that daily and almost hourly doses would be his rule [would any student be such a fool as to tell an examiner such a thing?], and hand me a certificate condemning a horse for every trifling ailment or blemish, with or without the real cause of unsoundness inscribed thereon, I candidly confess I would reject that student." Did he ever hear of an examiner who would not?

Then he goes on to say :—" Such things may suit other parts ; we don't wish them here ; and where is our examiner to prevent it?" By this he seems to imply that the examiners in Class C.—viz., Messrs. Pritchard and Cox on the horse, and Messrs. Duguid and Gresswell on cattle examination—are totally unfit for the part they are to fill. Allow me to tell Mr. C. that the above-mentioned gentlemen are more esteemed by the majority of the profession than he ever was, or ever will be. After all this, Mr. C. says he is pleased with the appointment of two of the Board of Examiners, viz., Mr. G. Fleming and Mr. Cox. The latter, he seems to forget, is one of the four examiners, " It is sickening (to use his own words) for him to think of."

Some men seem to think that by sending a report of nearly every case they have to the VETERINARY JOURNAL and *Veterinarian*, they will raise themselves in the eyes of their professional brethren sufficiently to be elected on the Board of Examiners ; and when they find out their mistake, they insult those who are elected. And I notice one of them, in his blind rage, sneers at one of the examiners, who is (to use the words of Mr. Hill), " the brightest literary star our profession contains ;" and, I may add, the man who has done more for our profession than any one ever did before.

In conclusion, I think such a list of well-known men for our Board of Examiners—some of them of almost world-wide reputation—should be a sufficient guarantee of its efficiency, and that no unprejudiced man could find fault with the selection our Council have made.—I am, dear sir, yours faithfully,
A COUNTRY PRACTITIONER.

THE FLEMING TESTIMONIAL.

DEAR SIR,—As the Committee are desirous of closing the subscription list of this fund at an early date, and as they are anxious that every member of the profession should have an opportunity of contributing to such a laudable object, they beg to bring it to notice, and to solicit favourable assent by forwarding subscriptions to the Hon. Treasurer, H. J. Cartwright, F.R.C.V.S., Wolverhampton, as soon as convenient.

The very strong claims Mr. Fleming has upon the profession, should render it a pleasure to us to show that we are not oblivious of his great services, nor ungrateful for the many benefits he has conferred.—I beg to remain, yours truly,

J. B. MARTIN, *Hon. Secretary.*

60, High Street, Rochester, Kent.

PRIZE FOR ESSAY ON AFRICAN HORSES.

DEAR SIR,—Being very much interested in the horses of Africa, I am anxious to give a prize (small gold medal) for the most practical essay on the horses of that country.

Therefore may I ask you to insert as above in your valuable Journal? The reports of competitors to be sent to me at Roorkee, N.W.P., India, by 31st March next.—I am, sir, yours truly,

P. RODDY, *Lieut.-Col., Bengal Army.*

Roorkee, 13th November, 1882.

"EXISTING PRACTITIONERS."

DEAR SIR,—I think I am correct in saying that about *nineteen-twentieths* of the large number of persons who have applied to be registered as "Existing Practitioners" reside out of London. It therefore seems somewhat singular that on the Registration Committee of the Council (appointed to investigate the claims of the various applicants), there is only one country M.R.C.V.S., Mr. Cartwright, the other members being two military men, a professor, an ex-professor, and five metropolitan practitioners.

There can be no doubt whatever but that many persons have applied to be registered who have no legal right, and how a central committee, sitting in London, will manage to properly investigate the claims from all parts of the three kingdoms is, I must confess, a puzzle to me.

If not too late, I would suggest that the Council should appoint several local sub-committees in various districts, who could take evidence, *viva voce* if necessary, and thoroughly sift the pretensions of those persons who have applied to be registered. These sub-committees could then report to the Council, and by this mode of proceeding I am convinced a number of impostors will be kept off the register of "Existing Practitioners."

I am, sir, yours truly,

"HIBERNIA."

TO CORRESPONDENTS.

J. F. W.—It is probable that the Council of the Royal College of Veterinary Surgeons will soon have decided as to who of those who have applied for registration as "Existing Practitioners" are to be registered. We do not know if it is intended to grant certificates, as the College cannot certify to anything more than the fact that these persons are registered, in order to protect them from the penal operation of the Act; and this the Register itself will do.

The Proceedings of the Scottish Metropolitan Association will appear next month.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from J. J. Meyrick, C.B., Cairo; Colonel Roddy, Roorkee, India; A. Metherell, Brighton; J. McFadyean, Edinburgh; A. Bain, Liverpool; A. Broad, London; W. A. Edgar, Dartford; R. Rutherford, Edinburgh; A. E. Macgillivray, Banff; J. F. Watson, Glasgow; W. R. Davis, Edinburgh; H. R. Bradshaw, Portrush; "A Student"; "A Country Practitioner"; L. E. Wheat, Ontario; J. Blakeway, Stourbridge; W. Broughton, Leeds; "Hibernia"; H. Rossignol, Melun, France.

BOOKS AND PAMPHLETS: *C. Cameron, M.D.*, Microbes in Fermentation, Putrefaction, and Disease; *Ch. Siegen*, Bericht über die Pasteur'sche Impfung gegen Milzbrand in Herve; *M. G. Chenier*, La Question d'Identité de la Morve et du Farcin; *C. Bäumlér*, Der Sogen. Animalische Magnetismus od. Hypnotismus; *C. Hueter*, Grundriss der Allgemeinen und Speciellen Chirurgie.

JOURNALS, etc.—*Zeitschrift für Vergleichende Augenheilkunde*; *Lancet*; *Recueil de Méd. Vétérinaire*; *Annales de Méd. Vétérinaire*; *La Presse Vétérinaire*; *Wochenschrift für Thierheilkunde und Viehzucht*; *Der Thierarzt*; *American Veterinary Review*; *Echo Vétérinaire*; *Australian Veterinary Journal*; *Medical Press and Circular*; *Chicago Live Stock Journal*; *Journal de Méd. Vétérinaire et de Zootechnie*; *Live Stock Journal*; *Nature*; *Revue Vétérinaire*; *Archives Vétérinaires*; *Edinburgh Med. Journal*; *Tidskrift för Veterinar-Medicin*; *La Clinica Veterinaria*; *Medical Times*; *Journal of Anatomy and Physiology*; *Breeder's Gazette*; *Field, Forest, and Stream*; *Journal of Comparative Medicine and Surgery*.

NEWSPAPERS.—*Oxford Times*; *Picton Colonial Standard*; *Dublin Evening Telegraph*; *York Herald*; *Cork Constitution*; *Lincolnshire Chronicle*; *Manchester Guardian*.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

FEBRUARY, 1883.

ACTINOMYKOSIS: A NEW INFECTIOUS DISEASE OF ANIMALS AND MANKIND.

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR.

(Continued from p. 16.)

These are the chief symptoms when the tongue is the seat of the disease. The pimple-like excrescences are often only the size of a pin's head or a millet-seed, but they are more frequently larger—from the size of a cherry to that of a walnut, or even greater. The inflammation (if any is present) and interstitial induration appear to proceed from the surface towards the centre, and the growth of the nodules takes place rapidly; and this is evidently proven from the circumstance attending their reappearance when they have been removed by operation. Mr. James has noticed this speedy reproduction, as in a letter to me he writes: "I am of opinion that most of the nodules or tubercles found in the substance of the tongue come to the surface at some time or other. For when treating such a tongue (as the one he first sent), we find sometimes that we have succeeded in curing the ulcers on the surface, but the next day or two we see a regular crop of ulcers and nodules on the surface again, and the poor animal protruding its tongue several inches from the mouth."

The appearance of the tongue, then, is characteristic of the affection, whether inspected while the animal is alive, or examined after death.

In the great majority of cases, there are perceived a more or less considerable number of prominences, on the dorsum most frequently, on one or both sides of the tongue, or over the whole of its surface ; these look like nodules or tubercles, sometimes like warty excrescences flattened on the top, and vary in size from a millet-seed, a hemp-seed, or a pea, to that of a walnut ; they may be single or in clusters. The tongue is enlarged, indurated, "lumpy," often more or less extensively ulcerated in one or more places ; there is very considerable hypertrophy of the submucous and interstitial connective tissue ; atrophy or degeneration, more or less marked, of the muscular tissue ; and the peculiar yellowish-white round nodules disseminated singly, or in masses throughout, each containing a cluster, or at least a tuft of the *Actinomyces*. The gums, cheeks, palate or jaws may also be involved.

In addition to the description given of that first sent by Mr. James, as well as the second specimen, I will select that offered by Professor Putz,* veterinary teacher at the University of Halle, though many others might be given.

In February, 1882, Veterinary-Surgeon Enke sent to the clinic of the school, the tongue of a newly-slaughtered cow, which, for a long time—at least six months—had eaten very little. An examination of this tongue was carefully made, and it presented the following appearances :—Its posterior part was greatly swollen, and the dorsum extremely elevated ; its anterior portion appeared to be normal. About three inches behind the tip were a number of irregular, sharply-defined, warty-looking elevations, which were scattered over the entire upper surface of the organ backwards. They were in size from that of a linseed to a hen's egg, the largest having broken through the mucous membrane, while the smaller ones could be felt as little irregular masses beneath it. The former resembled large, oval, and very much flattened warts, deprived of their epithelium. Their colour was pale-yellow, and their consistence soft and elastic. The largest of these was on the right side of the tongue, and was flat ; it measured $4\frac{1}{2}$ centimetres long, 3 centimetres

* Die Seuchen und Herdekrankheiten Unserer Hausthiere, Abtheilung 2, seite 599.

broad, and $2\frac{1}{2}$ centimetres high. Besides this growth, there were on the same side, towards the under part of the tongue, a great many nodules the size of a linseed, which could be felt beneath the mucous membrane. Large and small tumours of a similar character were found on the left side of the tongue. Above, on the arch of the dorsum, three large, well-defined cicatrices could be felt in the mucous membrane ; these had a red appearance, and on their upper surface small irregularities could be felt rising, as it were, from the connective tissue beneath. The central cicatrix was in the middle of the tongue, between the circumvallate papillæ ; the others were on each side, towards the margin of the tongue, the left being the largest—12·90 centimetres long, and 5·90 centimetres broad. In making a longitudinal section through the tongue, the tissues offered great resistance to the knife, and the cut surface exhibited an immense number of greyish and yellowish-white opaque nodules, imbedded in patches in the pale-red muscular tissue, many of them projecting beyond the level ; their size was between that of a linseed and a florin. The largest of these patches was somewhat oval in form, and penetrated, in a stellate fashion, deeply into the tongue-substance, as if following the course of the muscular fibres. The upper surface of the section was moderately moist, and studded with a number of millet-sized yellow nodules. The apex of the tongue was the only part of the organ free from these bodies. The weight of the fresh tongue was 2,430 grammes (5 lbs. 7 oz.). All the other parts of the cow, according to Enke, were healthy. Microscopical examination of the new formations or nodules proved them to be composed of masses or tufts of the *Actinomyces*, between the tufts being an abundance of lime salts. The tissue of the tumours had a kind of sarcomatous appearance, but there could be no doubt whatever as to the nature of the disease.

*Actinomykosis of the Bones of the Jaws.**

I have already given Bollinger's description of the disease, as

* Gamgee (Dairy Stock) undoubtedly alludes to this affection, though he was unaware of its pathology. He writes : " In young cattle there is a somewhat frequent disease termed by some veterinary surgeons ' Osteo-sarcoma,' ' Spina-Ventosa,' and other inappropriate names. The only term I can give

it affects the bones of the jaws. Not unfrequently we have the tongue and jaw, or jaws, affected simultaneously or consecutively—generally the latter. The tumour which forms on or in the bone is apparently of a sarcomatous or fibro-sarcomatous character, according as the Actinomykosis is periosteal or myeloid. It often commences in the alveoli of the jaw, and thence extends into the mouth and the cancellated tissue of the bone, and is accompanied by abscesses and fistulæ. In this situation it has been observed in the ox, pig, goat, and dog.

Only one instance has been recorded in the dog—that by Professor Vachetta, of the Veterinary School at Pisa, and which was published this year under the heading of “Macrocellular Osteo-condro-sarcoma, with Actinomycosis.” About two months before the Professor saw the dog, a swelling appeared, without any assignable cause, on the posterior half of the right branch of the lower jaw, and rapidly increased in volume. In about twenty days the tense skin became ulcerated, mastication was difficult, and the animal was then brought to the clinic of the school. The ulceration of the skin was now somewhat extensive, and in the centre of this was a small hole, into which

it is fibro-plastic degeneration of bone. There is no recognised cause of the disease. It occurs most readily from two to five or six years of age, and affects steers in preference to bulls; the lower jaw is most frequently seized in the vicinity of the second or third molar teeth. Sometimes the upper jaw is implicated....At a spot on the side of the face corresponding to the roots of the third or fourth grinder, above or below, a small, hot, circumscribed swelling occurs. The animal experiences no inconvenience from it, except when the part is struck or pressed upon. The tumour, however, grows and pain increases. In some cases the growth is rapid, and in a few months the disease has invaded the larger part of one-half of the upper or lower jaw, and gives rise to severe symptoms, which arise chiefly from disturbed mastication, pain, and often from various cruel methods of treating the disease. The teeth become loose in their sockets, may be affected by caries, and drop out. Anacker says, that sometimes a fistula opens into the mouth. . . . It is evidently a morbid condition of the bony structure. On dissecting the skin off the tumour, we find it covered with tough, fibrous tissue arranged in layers. The fibrous element diminishes towards the deeper parts of the growth, where at various parts *yellow accumulations of a friable, cellular, or granular matter are enclosed in solid cavities*, surrounded by bony plates, or a tough gristly tissue. M. Collignon, veterinary inspector of the slaughter-house of Montmartre (Paris), has observed the disease three times in 300 oxen, and those he found affected came from the marshy plains of La Rochelle. In the plains of Ferrara, and in the Maremme of Tuscany, the disease is very frequent. Low-bred animals are most subject to it, and its origin is usually attributed to a blow.”

a probe could only be introduced two or three millimetres. The tumour was hard as a stone at the margin of the dental alveoli, but became softer towards the lower border of the jaw. With the exception of the ulceration, the skin was otherwise healthy in the neighbourhood. The tumour was not hot, neither did pressure upon it cause pain, but difficulty was evidently experienced in moving the jaw. The mouth was kept half open, and a little saliva flowed from it ; the tongue was healthy, and nothing amiss was noticed on the left side or roof of the cavity. The fourth and fifth molars of the right side were pushed upwards by the growth of the tumour, and were a little separated from the adjoining teeth. The mucous membrane of the mouth was healthy, and the gums were not separated from the teeth. There was no swelling in the intermaxillary space, nor towards the neck. The jaw could be moved passively. The disease was diagnosed as Osteo-sarcoma, probably complicated with myeloplaxy.

In view of the rapid growth of the tumour, and the local and general condition of the animal, as well as the improbability of palliative, surgical, or pharmaceutical measures being of any avail, resection of the diseased portion of the jaw was made, and though for some time the prospects of recovery were favourable, yet the dog ultimately succumbed rapidly.

The major portion of the tumour was hard and fibrous, and had a reddish-yellow tint at the inferior part, whitish elsewhere. At the lower curvature the neoplasm became suddenly and regularly lobulated, the connective tissue forming the interlobular spaces being continuous with that composing the envelope of the tumour as a whole. The inferior third of the section showed multitudes of yellow points, irregularly disseminated throughout ; there were none in the upper part. The tumour and its fibrous envelope were very slightly vascular. When examined microscopically, the most important feature noted was the presence of numerous disseminated *Actinomyces* masses, especially towards the inferior part ; they were only casually met with in the upper portion, while deeper in the tumour they were very definite in outline, and enclosed in a kind of nucleus composed of apparently dead tissue. Many of these radiate fungi did not show the slightest trace of calcification, others were completely invaded by lime

salts, and the nodules enclosing them had to be treated with hydrochloric or nitric acid before their contour could be well defined. The fungus appeared in two rather different forms, or rather aspects, which probably depended upon its stage of growth. Cut in the direction of the sarcomatous tissue, intermediate to the necrobiotic focus, there were observed very numerous small discs composed of fine radiating filaments, one portion of which terminated in a rather dark punctiform dilatation (Fig 2). These



FIG. 2.—Young *Actinomyces* Disc.

were more abundant in the peripheral tissue of the tumour, which appeared to contain the younger specimens, and of which there were only a few varieties. There was a more adult form, very often two discs together (Fig. 3), in which the radiating



FIG. 3.—Double Discs of Adult *Actinomyces*.

filaments, starting from the central discs, were not so slender as in the other example, were of various lengths, and the punctiform dilatations at the end were also larger and more numerous. These dilatations, which may be considered conidia in process of maturation, were found in some preparations so developed as to look like true spores, and by their number and minute size they might readily become the active agents of dissemination, far and

near, of the micromycetes in the tissues. The other form of *Actinomyces* was composed of a central irregular, or round disc, light-yellow or olive-tinted, and granular, from which proceeded rays much larger than in the preceding forms. In some of the specimens these rays were approximately equal in length, and altogether the *Actinomyces* did not look unlike the flower



FIG. 4.—Marguerite-shaped Disc.

Marguerite (Fig. 4). In other instances, the length of the single filaments varied remarkably: while some of these projected only a short distance from the central disc, others extended in a direct or flexuous manner right into the surrounding necrobiotic elements. When by pressure the *Actinomyces* could be separated from each other into single filaments, and these were highly magnified, they were found to be flexible rods, each terminating in a lance-like bulging, or in an angular, single, bifurcated, or trifurcated extremity with a rounded apice. When yet more highly magnified, there was seen in the centre of each filament a fine axial line, either entire, broken, or in points or dots.

Vachetta terminates his observations by remarking that though the canine species has hitherto shown itself refractory to experimental inoculation, yet this instance proves that it may suffer from the accidental disease; that the fungus may present slight variations in form, not only in the different species of creatures in which it has been found (man, ox, pig, horse, and dog), but also in individuals and in the different neoplasmata, as is shown by the representations given of it under these circumstances. He was doubtful as to the channel by which it found its way into the tissues—whether by an excoriation, ulceration, or fissure in

the gums, or (which seemed more probable) rather by an ulcer or fistulous opening at the lower margin of the jaw.

Subsequent to the date of Bollinger's published observations, Johne had examined thirteen of these cases of myeloid Actinomykosis of the jaws (presumably of cattle) ; ten of these were fresh specimens, and three were old specimens preserved in spirit. Eleven were of the lower jaw, one of the upper jaw, and only one of both jaws. All had evidently a central origin (*centralen ursprung*), though in some cases the disease may have commenced in the periosteal tissue. He describes cases of myeloid Actinomykosis belonging to the former, and periosteal Actinomykosis denoting the latter. He also mentions a case of Fibrosarcoma of the lower jaw of an ox, in which the tumour was the size of two fists, round, fungous, and fibrous, and which arose from the alveolar periosteum of the middle incisors ; it lay beneath the mucous membrane, and produced great thickening of the lip ; another instance of fibrous tumour of the gum, apparently of new formation, the size of a hen's egg, which grew from the periosteum at the interior aspect of the junction of the two portions of the lower jaw, at the lower half of the alveolar border. The stroma of the tumour was three millimetres thick, and the mass, like that of the last tumour, contained "nests" (*nester*) of *Actinomyces*. He likewise alludes to an apparently fibrosarcomatous tumour on the margin of the gum of the lower jaw of a pig : a tumour about the size of a pigeon's egg, involving the tongue, and springing directly from the periosteum on the upper surface of both branches of the jaw. In the more dense fibrous tissue, less in the spongy stroma, were many conglomerations of nodules the size of a millet-seed, containing the *Actinomyces* in clusters, many of which were calcified.

Actinomykosis of the Fauces.

The disease generally appears in this region in the form of submucous new formations, or polypi, which have been classed with the Lymphomata or Lympho-sarcomata. They are round, fungous, or spongy tumours, covered by apparently normal mucous membrane. There are sometimes several in this situation. They present the same features, histologically, as the nodules in the

tongue. Hitherto they have only been found in the ox. Johnes describes one of these polypi obtained from the fauces of an ox, as about the size of a fist, round, fungous, and soft, covered by normal mucous membrane, rising from the right side of the cavity, a short distance behind the tonsil. On section, it showed five isolated, round, and generally fine spongy nodules, the size of a walnut. All of these contained conglomerated masses of the fungus.

The symptoms are generally difficulty in deglutition, and even in respiration, with cough, when the tumour is near the laryngeal opening. These tumours may also be the indirect cause of Broncho-pneumonia, through their diverting the food into the air-passages.

As has been said, tumours and abscesses are rather common in this cavity in the ox tribe.

Actinomykosis of the Nasal Chambers.

The only cases on record, so far as I can ascertain, are those described by Mr. James, and referred to at the commencement of this paper.

Actinomykosis of the Larynx.

Similar tumours to those observed in the fauces, are found in the region of the epiglottis and larynx. They are spongy in structure, and the characteristic nodules and *Actinomyces* tufts are contained in the fibrous meshes of their structure. In the region of the larynx, these formations cause more or less disturbance and difficulty in respiration.

(To be continued.)

CEREBRO-SPINAL MENINGITIS IN THE HORSE.*

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PROBABLY at the present time there is no disease regarded with wider-spread interest by the profession and horsemen generally of the United States and Canada, than the one known as Cerebro-

* A thesis read at the weekly meeting of the Association in connection with the Ontario Veterinary College.

Spinal Meningitis. Its very obscurity and ill-understood nature, together with the paucity of literature bearing upon the subject, have further tended to deepen that interest. Feeling that my own experience of the disease was too slight to be of much value, and not having much faith in mere theoretical expositions of its nature, I corresponded during the past summer with several leading American practitioners who have had long practical experience of this malady, and to their replies, given with the greatest kindness and courtesy, I am largely indebted for the compilation of my paper. With this preliminary I will now proceed.

Cerebro-Spinal Meningitis may be defined as a malignant fever of the epizootic class, resulting from a specific poison, which produces exact results, modified in degree in different cases, and characterized by profound disturbance of the central nervous system. Though this fatal disease has been noted in the human race since the fourteenth century, it is only during the last thirty years that its occurrence in the equine species has been brought prominently before the public. Of late years, since the attention of the profession has been called to its existence in the horse, it has been recognised in places far distant from the Eastern States of the American Union, to which locality the disease was formerly thought to be peculiar. Two years ago the English veterinarians first made its acquaintance, though it is said to have been prevalent in Ireland at various times previously, and, according to some, it has been seen in far-off India. Returning to this continent, we find that Professor Smith has met with the disease on Canadian soil; and Dr. Holcombe, I.V.S., U.S.A., believes that it probably prevailed as an enzootic in the Indian territory a few years since. Thus, at present, we cannot accurately lay down its geographical limits; probably it occurs in the sporadic form in nearly all countries, but it is only in the United States, as yet, that the disease has taken on an epizootic character. The tropical regions proper have hitherto escaped its ravages in the human subject, and are believed to be exempt; perhaps the same may hold good of the horse.

Etiology.—Its etiology is shrouded in mystery; age and

external conditions of life, which have so powerful an influence in the human being, exert no appreciable effect on its development in the horse. It is met with alike on low-lying marshy ground and on high plateaux; occasionally we find mares attacked in larger ratio than geldings, but this is just as frequently reversed. Atmospheric influences have been called into account for its occurrence in the epizootic form, and may possibly be concerned in the distribution of the virus. Though isolated cases may be met with at any season of the year, it is essentially a disease of the cold months. It has been pointed out that the most severe outbreaks take place in early spring, when the sun is warm enough to thaw the ground during the day, and so release the poisonous germs, though the weather is still too cold to allow of the stable-doors and windows being left open for ventilation. This state of affairs causes a great accumulation of poisonous matter in the stables, which produces its results in due time. In the Canadian outbreak, Professor Smith traced the cause to impure water; on remedying this no more animals died, but next year, after watering at the same place, the disease again appeared. This appears to be conclusive evidence that it may be produced as a dietetic disease, and most probably a great many sporadic, or localized outbreaks, might be found to have a similar origin. In the November number of the *American Veterinary Review* is an article by Dr. Michener, on what in his locality is called "Choking Distemper," and also "Convulsive Ergotism." In this particular instance, over forty horses were fed on sour brewers' grains, and every one died from the disease. On being fed to cows, these grains did not produce any deleterious effects. He also mentions the case of a farmer who lost five horses from feeding on musty oats; some of these oats being fed to horses in Philadelphia, killed them in like manner. Dr. Michener believes it to be due to fungus spores floating in the air, or adhering to the feed, and proposes to call it "Fungus Toxicum Paralyticus." By some it has been included among the neuroses or functional disorders of the nervous system, without typical *post-mortem* appearances or anatomical characteristics. Without doubt, the debilitating effects of bad ventilation, overwork—especially night-work—

and sickness, afford a good opportunity for its development ; but in the epizootic form we must admit the existence of a specific blood-poison, having a special affinity for the nervous centres. Frequently we meet with the disease in horses enjoying the best sanitary conditions, and even attacking them in preference to weaker animals ; such has been the experience of many practitioners. It was formerly regarded as of malarious origin, but the inefficacy of quinine disproved that idea. Some years ago, Professor Large, of Brooklyn, advanced a theory which, to a large extent, has influenced the therapeutics of Cerebro-Spinal Meningitis ever since. He regarded it as a specific blood-poison affecting the ganglionic or sympathetic system of nerves, the toxic effect of the blood producing a condition of vaso-motor paresis, and the train of symptoms being due to the loss of the governing power of the circulation—in a few words, a paralysis of the sympathetic system. Its infectious character seems to have been indicated in a few instances in the human race ; but in the horse it is usually regarded as non-transmissible, and dependent on some generally-acting cause.

Symptoms.—The symptoms vary with reference to the accumulation and multiplication of the virus in the system, and the portion of the cerebro-spinal axis immediately affected. At the commencement of some epizootics, the fulminant form often prevails ; the animal, with such slight premonitory symptoms as to be overlooked, wobbles in his gait, goes down ; furious delirium alternates with coma, the breathing is stertorous, and he soon dies from rapidly progressive paralysis. In a few cases, and those mostly of the above-mentioned type, the animal, after slight twitchings of the muscles, is suddenly seized with opisthotonos or emprosthotonos, a slight degree of trismus being occasionally present, or the lips are twisted to one side. In a few instances, general rigidity of the muscles of the hind-quarters has been observed. These phenomena arise from the exalted condition and perverted distribution of nervous energy ; but this state soon passes over, and perfect enervation prevails. The undoubted occurrence of tetanic spasm in the horse in this disease is interesting, as some medical authorities have thought that the opisthotonic attitude so frequently assumed by children when

suffering from Epidemic Meningitis was purely voluntary, and the one which gives most relief from pain. But we must not imagine that Cerebro-Spinal Meningitis is characterized by tetanic spasm, for this only occurs at the onset, and even then is met with in a minority of cases. Usually the observer is struck by the utter prostration and depressing effects of the poison on the animal economy; the muscular system is entirely flaccid, and there is a laxity of every function. In the majority of cases, however, there are certain early premonitory symptoms of the oncoming disease. The horse appears dull and indifferent to surrounding objects; he droops his head, and shows symptoms of more or less severe headache; the appetite is poor; if in a team he lags behind, the gait becomes staggering, and the hind-legs "plait," as it is termed. Some local paralysis may now be noticed, such as lopping of the ears, or loss of prehensile power in the lips, accompanied by slavering. Difficulty in deglutition is present in every case, and is often the first symptom noticed. Mastication is very slow, and in drinking the nose is dipped nearly to the eyes in the water, and although he appears to drink readily, yet little is taken. Often this difficulty in deglutition leads to the practitioner being called to see a case of "sore throat," as it is thought to be by the attendant. This important symptom arises from the animal being unable to "trough" his tongue, through partial or entire paralysis of the muscles controlling that organ. Frequently the first symptom shown is a loss of muscular power in the tail; you can readily turn it up over the croup *without resistance*. It is very imperfectly used to brush off flies, scarcely reaching the flanks, and often not used at all where sensation is much impaired. Some cases are ushered in by an attack of Colic, apparently neuralgic in character; such patients require very careful watching in an epizootic. *Congestion of the retina, as seen with the ophthalmoscope, is one of the earliest, if not the FIRST, evidences of the disease.* In from a few hours to four or five days the animal becomes comatose, but at any time during the ordinary course of the disease he may be easily aroused, though sometimes becoming very much excited when disturbed. The somnolence or apathy may persist throughout in some cases, but is more frequently alternated

with delirium, which is sometimes so violent as to render it dangerous to approach the animal. Such cases generally die in a mad state. The pulse is not much altered, but is usually weak and soft ; in fact, the capillary circulation is *sometimes* so slight as to lead to extensive sloughing of those parts that come in contact with the ground or slings. In acute cases the pulse is often extremely fast and irregular, but in the experience of most practitioners never "*wiry*," as stated by Lyman in "Williams' Practice." The temperature in typical cases is about, or below, the normal ; but in some protracted cases a few hours before death, and in fulminant cases living only a few hours, we may find it run up to 105° . Bed-sores may cause a rise of 1° , but, excepting in the above case, a high figure usually points to lung complications. The bowels share in the prevailing torpor, and are usually inactive ; retention of the urine readily occurs from paralysis of the bladder ; hæmaturia may be present early and late in the disease, nearly pure venous blood being passed in some cases. Sexual excitement is nearly always present in mares and stallions ; priapism has been noticed in the gelding. They frequently struggle violently while in the slings, and sometimes a patient will astonish you by turning a complete somersault. Rudimentary forms, in which difficulty in deglutition and lumbar weakness are the most constant symptoms, occur on the outskirts of epizootics. Fatality is in ratio with the sudden or gradual development of the symptoms. In cases which recover, the acute symptoms are over by the eighth or tenth day, as a rule. Death usually results from coma. Young and vigorous animals recover quickest ; relapses are common, and the practitioner should always be very careful in making a prognosis in horses past their prime. As the animal improves he becomes brighter, delirium ceases, and the intervals of coma are lessened. In nearly all cases he gains flesh while in the slings. Dr. Rogers, of Gloucester County, New Jersey, informs me that two of his cases, apparently progressing favourably towards recovery, died of true apoplexy, in each instance the clot being thrown out at the base of the brain ; and in one case a horse, aged nineteen years, producing in a beautiful manner the respiration similar to that seen after section of the pneumogastric nerve. The para-

plegia, which persists in many cases after the animal is otherwise restored to health, is the bugbear of American practitioners ; it often lasts for months, resisting every method of treatment.

Diagnosis.—This is sometimes beset with difficulties, as shown by the fact that for a long time Cerebro-Spinal Meningitis, Azoturia, and Paraplegia were regarded as one and the same disease. But the diagnostic points have been pretty well settled by close and scientific observation. Occasionally it may be confounded with the nervous form of Influenza ; the occurrence of convulsive fits, coma, and lumbar weakness may be associated with *real sore throat*, cough, discharge from the eyes and nostrils, high pulse and temperature. Such cases may most probably be referred to the specific blood-poison of Influenza, acting more especially on the nervous system. Azoturia is frequently mistaken for it, but there is an absence of the hard and *board-like* condition of the gluteal and femoral muscles seen in the former disease. There is not the pain, the high febrile condition, and excessive sweating over the hind-quarters as seen in Azoturia. You may have bloody urine, as I have already said, early and late in Cerebro-Spinal Meningitis ; the urine may be dark, and loaded with urea or its analogues ; but you will not find the coffee or chocolate-coloured thick grumous discharge, loaded with albumen, and often with casts, that you find in Azoturia. The previous history of the case, the idleness and high feed, the fact that the animal frequently goes lame on one hind-leg before showing the more acute paraplegic symptoms, together with the absence of that early onset of coma and difficulty in deglutition seen in Cerebro-Spinal Meningitis ; all these will help the careful practitioner to form a correct diagnosis. In Paraplegia, again, we have high febrile condition and pain, very different from Cerebro-Spinal Meningitis ; the animal, as a rule, struggles about more ; the hind-quarters remain immovable, and the horse nearly always gallops with the fore-limbs—a peculiar symptom never observed in the latter malady. We should have no difficulty in distinguishing it from Spinal-Meningitis, which occurs from well-marked causes at any season of the year. In simple Spinal-Meningitis, we have a full hard pulse, high temperature, perfect deglutition, and absence of retinal congestion. Sunstroke

occurs at a different time of year to that in which Cerebro-Spinal Meningitis chiefly prevails ; and the high temperature, peculiar dryness of the skin, occurrence on a hot day, and general history of the ^{case}, are sufficient to prevent us falling into error. No absolute distinction, as regards the symptoms, can be drawn between Epizootic Cerebro-Spinal Meningitis and the sporadic malady of the same name.

Post-mortem Appearances.—Though many pathological conditions of the brain and spinal cord have been described by various authorities, there is still a remarkable difference of opinion among the profession on the subject. Whether this arises from most *post-mortem* examinations having been made in fulminant cases, in which death occurred too quickly for local lesions to be developed, is hard to say. The same thing obtains in the human subject, and has led to its being classified by some among the *neuroses*, or functional disorders of the nervous system. Dr. Holcombe has never found any *post-mortem* appearances that were constant, and could explain its pathology. Dr. Very, of Boston, has made many autopsies, but never saw any lesion in the spinal cord or any of its membranes, beyond finding a little fluid, which he was satisfied was not the result of any diseased condition previous to death. Dr. Rogers says that you will usually find the membranes of the brain and upper part of the spinal cord more vascular than normal, with increase of serum in the sub-arachnoidean space and in the ventricles, and in some cases an abundant exudation of thick yellowish lymph on the base of the brain, together with œdema of the brain and cord ; and that this loosening and separating of the nerve elements possibly accounts for the motor and sensory disturbances seen during the course of this disease. In those few cases which die of Apoplexy, the clot will usually be found at the base of the brain ; its occurrence is interesting, as showing the passively dilated condition of the small blood-vessels. In England, Professor Axe found ten or twelve ounces of arachnoidean fluid, the pia mater brick-coloured and engorged, membranes of both brain and cord intensely congested and marked with blood clots, brain showing a similar condition, with some staining of serosity, with which it was infiltrated, and no softening ; mucous mem-

brane of large intestines and villous portion of the stomach congested.

So marked were the latter lesions, that an analysis was made for vegetable or mineral poisons, but with negative results. Somewhat similar appearances were observed by Professor Smith in the Canadian outbreak. Others have noticed separation of the dura mater from the vertebræ in the spinal canal, by extravasated blood; embedding of the nerves, as they emerge, in sero-purulent exudation; pus in the central canal of the cord, and purulent infiltration of the pia mater in the lumbar region. The ecchymoses of the intestines are probably analogous to the purpuric spots seen so often on the skin of human patients suffering from this disease, and which, in them, gave to it the name of "Spotted Fever" in many places. Their occurrence gives strong support to the view that we have to do with a blood-poison, of whose nature, however, absolutely nothing is known.

Treatment.—Owing to our imperfect knowledge of the pathology of Cerebro-Spinal Meningitis, there necessarily exists considerable controversy as to the proper therapeutic measures to be adopted. Most empirics, not appreciating the constitutional nature of the disease, direct all their treatment to the throat and loins. Chloral hydrate and bromide of potassium have been recommended by some as valuable medicinal agents, especially in cases where delirium runs high; while others assert that the bromides have no effect on the larger domesticated animals. The combination of ergot with strychnine, belladonna, or chloride of iron, is highly praised by many; its use is especially indicated in those cases where hæmaturia is present. Dr. Very found that arsenic and atropine, placed on the tongue, yielded apparently good results; but in his opinion all treatment is guess-work. Acting on his theory that the disease was essentially a paralysis of the sympathetic, Professor Large gave belladonna throughout the active course of the disease, and also used it as a prophylactic; but the results of the preventive treatment by giving this drug, have been criticised with some reason by other veterinarians. Though used by most practitioners to a greater or less extent, many place no reliance upon it until the more acute symptoms have passed, and then only do they begin

its exhibition. A grave objection urged against the use of belladonna by some, is its tendency to throw a horse off his feed, a thing we should especially avoid in Cerebro-Spinal Meningitis. Largely owing to the experiments of Dr. Holcombe, the employment of strychnine in the malady was commenced, and the good results obtained have led to its general adoption. It has a powerful influence on the nutrition of the spinal cord, and is of great value in both preventing and curing the resultant paralysis. Some give it after the acute symptoms have passed, in one to three grain doses; others, again, begin with large doses given by the mouth at intervals of one or two hours, even where opisthotonic or emprosthotomic symptoms are present, running up from two or three to six, eight, or nine grains of the drug at each dose. In acute cases, when the animal is down and unable to stand in slings, Dr. Rogers places all his reliance on hypodermic injections of morphia, but says you must push them until they produce *automatic movements simulating the act of trotting, and profuse diaphoresis*. He has never seen a case die where the drug could be pushed to this extent; but it will be necessary to give from forty to sixty grains in two or three hours, in order to get the desired effect. If after giving about fifteen grains, the horse sleeps quietly, though only for a few minutes, he finds it a favourable symptom. He gives tincture of matico and strychnine during convalescence. The opium treatment of Dr. Rogers seems somewhat similar to that adopted by Dr. Stillé, of Philadelphia, with great success in the Epidemic Meningitis of children. Stimulants, such as aromatic spirits of ammonia, alcohol, nitrous or sulphuric ether, are extremely useful at times, and must frequently be pushed to a considerable extent. After the more pressing symptoms have been alleviated, carbonate of ammonia, with ginger and gentian, given in bolus, will be found of service in keeping up the appetite. Most practitioners purge, under the idea that they have to deal with a blood-poison, and that it is their duty to eliminate it as quickly as possible from the system; but it is necessary to give half as much again of purgative medicine as you would do under ordinary circumstances. For my own part, I think those practitioners are right who consider depletive measures unadvisable in such a weaken-

ing disease. Slinging should always be resorted to when the animal can stand, as if not got upon his feet within twenty-four hours his chances are very poor indeed. A few pretend to treat cases, when down, by turning from side to side, but such a course is very unsuccessful. As to the application of counter-irritants, this is another disputed point, though condemned by many as absurd; the most successful practitioners use mustard to the spine, and even to the throat, and claim that benefit is so derived. Where delirium runs high, ice to the head may be of service, or this not relieving the patient, a good mustard plaster to the poll may have the desired effect. In many of these cases, hot and cold applications used alternately are found to answer better than either used alone.

In acute cases, where there is imminent danger of collapse, and in others where deglutition is impaired to such an extent that the animal can scarcely swallow at all, the plan proposed by Professor Smith is well worthy of a trial. A specially constructed tube, about twice as long as the ordinary catheter, but of similar diameter, is passed along the inferior meatus of one of the nasal chambers, and pushed on to the stomach (two catheters fixed strongly and smoothly together would answer in an emergency). Through this tube stimulants or other medicinal agents may be pumped, and even nourishment be administered. The action of the bowels should be solicited by enemas, and it will usually be found necessary to pass the catheter night and morning for some days. If unable to swallow, the vital powers may be kept up by whisky, eggs, milk, and gruel, given either by enema, or preferably by the tube.

When convalescent, if there is resultant paralysis, use a current of electricity strong enough to produce a sensation of pins and needles, applied to the parts three times a day, and *decreased* on the slightest sign of improvement; also try the effects of nervine tonics, as arseniate of potash, strychnine, and the preparations of zinc. Build up the system by means of vegetable and mineral tonics, and give iodide of potassium and gentle diuretics to promote absorption of any effusion which may have taken place. Laxative food, such as scalded oats and bran-mash, roots, apples, and linseed, should be given throughout the disease, and will obviate the tendency to constipation.

Give exercise as soon as possible, being very cautious at first that your patient does not fall and hurt himself. It is a good plan, before taking him out of his stall, to alternately advance and back him a few steps, and then, with the help of two assistants to prop his hind-quarters in turning, you may move him off. If the weather is fine, a good sun-bath daily will be of great benefit.

Stimulating liniments, or cantharidine, bimodide of mercury, or tartar emetic blisters, may be applied to the loins for the resultant palsy ; but many of these cases recover after unavailing treatment, when given a long rest and a run at pasture.

Whenever possible, especially in the acute stage, give your remedies hypodermically, and while employing the powerful therapeutics mentioned, such simple but valuable measures as hand-rubbing, comfortable clothing, and bandages to the limbs, should not be forgotten. A good deal more, in veterinary practice, depends on nursing than is usually thought by the laity.

When an outbreak occurs, a searching investigation should be made into the quality of the food and water ; and even if nothing be detected, it will be well to completely change the diet. Defective ventilation or drainage should be remedied ; and if many new cases occur, despite all sanitary precautions, remove the animals from the infected stables. Then thoroughly disinfect by means of sulphurous acid gas, liberated in large quantities by placing sulphur on red-hot iron plates ; apply carbolized white-wash to the walls, and on returning the animals put them on a course of hyposulphite of soda. These measures, fully adopted, will materially lessen both the number and severity of the cases. Doubtless, in the near future, the subject of the diseases of the nervous system of our domesticated animals will receive that attention from the profession which its importance entitles it to. Within a comparatively recent date, catalepsy and locomotor ataxia have been observed in the horse ; and as an inevitable result of domestication, we may expect that the list of these disorders will yet be greatly increased. Few veterinarians up to the present time seem to have had the inclination or opportunity to fully investigate the nature of Cerebro-Spinal-Meningitis ; to the lack of sufficient data is due the meagreness of my paper, which I now draw to a close.

NOTES ON CATTLE DISEASES IN THE PUNJAB, INDIA.

BY VETERINARY SURGEONS QUERIPEL AND NUNN, ARMY
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BY the September issue of the VETERINARY JOURNAL, we are happy to find that this most important subject is now, through the intervention of the editor, attracting attention in official and also in professional circles. On this account we are induced to offer these few additional remarks, expressing, at the same time, a hope that the matter will be fully followed up, for in a country devoted so entirely, as India is, to agricultural pursuits, the matter should receive the most serious consideration at the hands of Government, as the losses sustained annually from epizootics are at present enormous, and, owing to the apathy of the natives, they are likely to be continued until some legislation is brought into force. It may be said that the matter has until lately received but little or no attention. On this account the literature bearing on the subject is but scanty, if we except the Proceedings of the Cattle Plague Commission, assembled a few years ago, under the orders of the Government of India. It is, however, to be regretted that the *practical* results of this Commission were so few, as, with the amount of information collected, most useful and suppressive measures might have been brought into force. We fully recognise the difficulties which legislation on the subject is likely to meet with, but, at the same time, simple measures might have been commenced, which, had they been persevered with, would have resulted most beneficially in the prevention, or rather in preventing, the extension of those diseases which now decimate the flocks and herds of this country at regular intervals.

These diseases may be said to consist of—(1) Rinderpest; (2) Foot-and-Mouth Disease; (3) Anthracoid diseases, especially Gloss Anthrax and Splenic Apoplexy; (4) Smallpox in sheep; (5) Scab in sheep.

The following notes are the results of our own observations during the years 1879 to 1882, and we trust that members of the profession in other provinces and presidencies may hereafter be

induced to add, from their own experience, any further information on what may be termed one of the most important subjects as affecting the Veterinary Department and also the agriculturists of this country.

The first serious notice of the matter taken by the Government of India was a severe outbreak of Cattle Plague, extending through the districts of Jhelum, Rawul Pindi, Peshawur, and Kohat, in the month of January, 1879. As this was during the first phase of the Afghan war, and further, as the line of rail only extended to Jhelum, from which place all supplies for the troops both in the Khyber and Kurram Valley were forwarded by means of bullock-carts, it will be at once seen that the prevalence of this fatal disease imperilled the lines of communication for both armies. The length of the lines of road to be traversed was 170 miles from Jhelum to Peshawur on the Khyber side, and about 240 miles to Thull, at the entrance to the Kurram Valley. These lines were worked by stages of about twelve miles each, and from a report received from the superintendent, it would appear that 267 bullocks died and 201 were sick from 1st January to 25th January. In the month of March it was determined to depute Veterinary Surgeon Queripel to inquire into the nature and extent of the Cattle Disease on the trunk lines of road north of Jhelum, and to suggest remedial measures. In accordance with his instructions, he proceeded and found that in ninety-seven villages in which cattle disease existed, 2,102 had already died. These statistics, however, from the want of system in recording the deaths, could be looked upon as being far under the mark, and from personal observations it was found that at least 80 per cent. of the animals seized died. In a report to the Local Government on the subject, after detailing the results of investigations made in various villages, the rules given in Appendix marked A were recommended to be translated and widely circulated to all infected centres.

One of the results of these recommendations was the appointment of six salutrees, or native farriers, on the trunk line of road between Jhelum and Peshawur. This number was afterwards, during the second campaign, increased to fifteen, which included three duffadars, or superintendents of various sections.

It will be noticed from the perusal of the rules that they were purely rudimentary. This was considered necessary, as at the time the people were in no ways prepared for more stringent measures. These rules also applied solely to the villages of the affected districts, but the chief object to be considered, in a military point of view, was the prevention of animals from infected villages coming in contact with those employed by Government on the lines of communication. Under orders of the commissioner or chief officer of the division, no animals from places where the disease existed were allowed on the trunk road, and sites were selected near the various encamping grounds for the segregation of all animals affected. These measures, although of the simplest nature, were so far effective that in the month of June, 1879, the disease may be said to have been arrested. The losses, however, to the farmers, especially in the Rawul Pindi district, were such that many men that were well to do before may be said to have become destitute. The ignorance and apathy existing amongst the farmers was at this time pitiable. In cases where Rinderpest had entirely removed every animal belonging to them, they, as far as their means permitted, replaced them, bringing them to the very spot on which their former animals had died, without taking the slightest precautionary measures. Other cases were known in which cattle were brought from an infected centre at a cheap rate and introduced into villages that had hitherto been free, the result being that the disease was disseminated all over the country. This alone would point to the necessity for some laws to be enacted, otherwise the losses must continue to be enormous.

In the report above alluded to, the fact that it was impossible to attempt the occision of affected animals, on account of religious prejudices, was considered ; but owing to the fact that the symptoms of most epizootics in this country are much less marked than they are in Europe, we are enabled to do a great deal without having recourse to anything which would so offend the natives of India. This was fully proved by the success obtained from the measures adopted under the orders of Col. Hall, the Commissioner of the Rawul Pindi Division, in which isolation and strict attention to sanitary and hygienic measures were

insisted on. These had become necessary from the fact that from December, 1878, to April, 1879, or in four months, no less than 30,513 head of cattle had died in one district alone. This brings the matter to the close of the first Afghan campaign, 1878-79. In September of the latter year, hostilities again commenced; it was then decided to form a military transport service for the conveyance of stores from Jhelum to Peshawur. To effect this, twelve stages, each with about 440 bullocks, were formed: this rendered extra and increased supervision necessary; the utmost care was taken to prevent the extension of disease to the line, and, by strict attention to orders, carried out by the salutrees and duffadars, most of whom were obtained from native cavalry regiments, all severe epizootic outbreaks were avoided, if we except one which made its appearance at a stage called Dungerzai: this, however, was only Foot-and-Mouth Disease. This leads us again to remark that the virulence of epizootics is not nearly so great in India as in western countries; in fact, if ordinary care is taken, but few cases of Foot-and-Mouth Disease should prove fatal. At the stage above mentioned, over 200 animals were attacked; of these only one died, and within three weeks from the date of the appearance of the first case, the disease may be said to have been arrested. This brings us now to the close of the second phase of the Afghan war, when the Punjab Government, recognising the necessity for veterinary aid, in order to check the ravages of cattle epizootics, applied for the services of Veterinary Surgeon Nunn to be placed at their disposal. Since then he has been employed in endeavouring to suppress the various outbreaks which have occurred from time to time. The difficulties, however, which have to be met may be readily understood when it is taken into consideration that he has to act in a province the size of the United Kingdom; and further, that he is unaided by any legislation on the subject; further, of the fifteen assistants or salutrees employed during the war, thirteen were discharged, and only two remain to help him. The chief outbreaks since 1880 have been: 1st, in Kangra Valley and Kulu, from which may be said to have arisen the various outbreaks which decimated the herds of other districts subsequently. This valley is the chief tea-growing district of the north of India, and not only does

much traffic from Central Asia and Thibet come through Kulu into it, but tea and other produce is conveyed by two trunk roads from the valley to Jullundur and Umritsur—the nearest points on the line of rail. This traffic is solely by means of bullock-carts. It will be at once recognised that from a district so situated, in which Rinderpest exists, and wherein no laws restricting the movement of cattle are in force, the dissemination of the disease must be widespread. It is a matter for regret that no statistics exist from which any reliable information as to the death-rate can be obtained. From one report from the Assistant Commissioner, Kulu, it would appear that 500 head of cattle are known to have died in three weeks in a small extent of country, and from personal observations made whilst investigating the disease it is known that villages were entirely swept. In this outbreak it was reported that the mortality was also great amongst sheep and goats. From this centre may be traced most of the virulent outbreaks which from time to time have occurred in the Punjab, and, amongst others, we would name those that occurred in the districts of Sialkote, Gurdaspur, and Umritsur. In the first-named district it was clearly proved that the disease owed its origin to cattle purchased at a large fair held at Umritsur, between which place and Kangra we have already shown a large trade exists. If, therefore, animals are allowed to be sent from infected centres to these large fairs, at which as many as 100,000 head of cattle are collected, and from which they are brought and sent to all parts of the country, it will be seen how the disease must steadily and widely spread. In the district of Gurdaspur, which lies between that of Kangra and Umritsur, through which the trunk road passes, 1877 head of cattle are known to have been attacked from February to May, 1881, and of these 1396 are reported to have died. These statistics, whilst allowing us to form some approximate idea of the death-rate, cannot be implicitly relied on, as from the imperfect manner in which they are kept it is only too evident that many deaths take place without being registered.

In addition to the direct method by which the disease is spread, and to which we have above alluded, must be added that due to the traffic in hides. In a letter from the Financial Commissioner

asking whether disease could be propagated through the importation of hides, he states, that he remembers meeting herds of bullocks with skins on the hills, and being told by the bystanders that they were cheap where they came from, owing to Rinderpest having existed there. From this it will be gathered how necessary it will be carefully to watch the traffic in these articles, as being indicative, when the trade is abnormally large, of disease existing across the frontier, mainly in Cashmere. But there is still another and perhaps more serious question as affecting the traffic in hides, and that is, that hitherto, during an outbreak of disease, the Chumars, or leather curers, being the lowest or most degraded caste of the population, have been allowed to remove the hides. The profit from this has been so large that it is confidently believed that they convey the virus from infected herds to surrounding and healthy villages, in order to increase their illicit gains—the fact that cattle poisoning by these people exists to a large extent in the Punjab is a well-established fact. This, therefore, would point to the necessity of prohibiting the removal of skins from carcasses during the prevalence of any contagious disease.

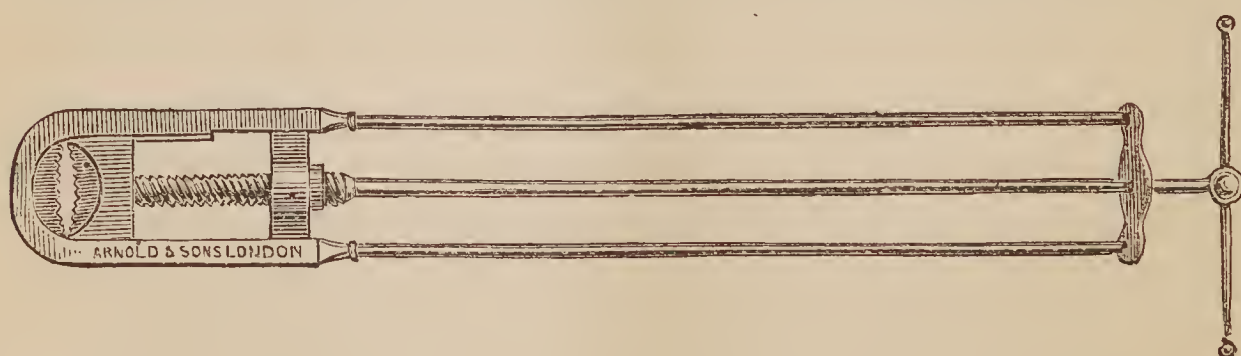
(To be continued.)

DENTAL SURGERY.

BY W. A. EDGAR, M.R.C.V.S., DARTFORD.

HAVING used the instrument described below for the past three years, with considerable success, I venture to introduce it to the profession through the pages of the VETERINARY JOURNAL.

Its general outline is depicted in the accompanying woodcut.



By the central screw motion, an enormous cutting power is obtained with a very small amount of steel, which greatly reduces the weight of the instrument—an important point for obvious reasons. The cutting edges are made tooth-like, the points con-

verging at the centre; and being very sharp, they obtain an immediate and immovable grip upon the portion of tooth to be excised. By digital manipulation, the size of the tooth is calculated, and the instrument screwed up before insertion into the mouth. This makes the actual operation much quicker, and prevents the animal becoming impatient. An even section is made in the *actual direction* in which the incisor is *adjusted*; and the instrument will remove the hypertrophied portion of *any tooth*. Its action is most humane, the operation being, so far as I have been able to form an opinion by the quietude of my patients, perfectly painless. There is no risk—as with the shears—of cutting the buccal membrane, or gingivæ, in excising a posterior molar. In this case, if the mouth, from the extreme length of the tooth, cannot be sufficiently opened with an ordinary mouth-iron, the leather mouth-expander should be used. The incisor is manufactured by Messrs. Arnold and Sons, West Smithfield, London.

ANTHRAX IN CACHAR AND MANIPUR, INDIA.

BY J. GRIFFITH EVANS, M.D., ARMY VETERINARY INSPECTOR,
MADRAS.

(Continued from page 38.)

48. There are, I am told, many more ponies in the town and district of Sylhet than there are in Cachar, because it has a larger population and the natives are much better off, for which reason also there is a larger proportion of them stabled. The stables of the natives at Sylhet, however, so far as I have seen, are in a far worse sanitary condition, especially the flooring, than those of Europeans in Cachar and the Brahmaputra Valley—where Anthrax has been.

49. *Bad Sanitary Conditions are not enough to cause the Disease unless the Specific Virus bearing Organisms or Spores are present.*—From the above description it appears that the geological formation, with recent alluvial deposits and swamps, the water conservancy, and the stable management of Sylhet town and district, are as favourable as anywhere else for Anthrax; yet the disease is not known there. We may infer from this that the saturation of the alluvial soil of the stable floor with urine, a fearful amount of ordinary impurities in the drinking water,

alluvial soil adhering to the roots of the doob-grass eaten, emanations from the retentive alluvial soil in pastures and from swamps, with favourable seasons and climate, will not of themselves, nor when all combined, cause the disease; some other element is still wanting in addition to all these in Sylhet. What is it? I do not know, unless it be the specific virulent Bacillus, which probably is not indigenous in any part of Assam, which probably was not introduced to Gauhati before the epizootic season of 1878-9, and which I suppose has not yet been introduced to Sylhet. Though ponies are constantly going from Cachar to Sylhet, I could not learn that one ever went with the disease in the system in the incubative or other stage, to die there. It is most probable that if the disease were so introduced into Sylhet, as we know it has been taken from Gauhati and Nongpoh to Shillong, it would remain and spread, for all conditions are more favourable for it at Sylhet than at Shillong. This is a very important point to watch in future.

50. *Prevention.*—I shall conclude by making a few remarks upon the subject of prevention, which is the main object in view always when investigating the cause. If it were practicable, I would first of all strongly urge a good system of drainage for the country, but at present that cannot be done. The next best thing is to pay great attention to sanitary laws in the stable management, keep the flooring dry and clean, let the ponies have the purest water available to drink, and good clean grass. When animals die of this disease, dispose of the carcasses as I recommended in paragraphs 13 and 14 of my letter $\frac{B}{19}$ of the 3rd ult., great care being taken to prevent any of the blood sprinkling about, remembering always that the dead animal is much more infectious than the living in this disease. The latest researches of investigators in Europe, prove that the system may be protected against Anthrax Fever by inoculation with the virus modified by cultivation, and there is little doubt that in a few years hence it will be adopted in all anthracoid districts, as Cow-pox is used to afford protection against Small-pox. But at the present time the safest method of cultivation has not been determined, and I think it is premature to recommend its adoption in Assam, where there are no skilled veterinary practitioners to do it.

Editorial.**THE REGISTRATION OF EXISTING PRACTITIONERS.**

As the selection for registration of those persons who are not qualified by the Royal College of Veterinary Surgeons to practise veterinary medicine and surgery in the United Kingdom, but who are provided for in the Veterinary Surgeons Act, now approaches completion, it may be well to make a few remarks on this subject, and more especially as some misunderstanding or misapprehension appears to exist with regard to the manner in which the selection has been made, and also as to the position of the persons who may ultimately be registered. As is well known, one of the objects of the Act is to prevent people who are not members of the Royal College of Veterinary Surgeons from assuming any name, title, addition, or description which might lead the public to believe they are Veterinary Surgeons, or practitioners of veterinary medicine, or of any branch thereof, the penalty for infringement being a fine not exceeding twenty pounds. The only exception made to this prohibition is in the case of those unqualified persons who had continuously practised veterinary medicine and surgery for a period of not less than five years previous to the passing of the Act ; and in order to protect them from its penal operation, their names were to be placed on a separate register, under the heading of " Existing Practitioners." Previous to the passing of the Act, persons could assume the title of Veterinary Surgeon, and even that of Member of the Royal College of Veterinary Surgeons, as no law was in force to prevent this assumption, and therefore no illegality could be laid to their charge. To deprive them, therefore, of a designation which they had committed no legal wrong in adopting, and under which they had gained their livelihood, appeared to the Government not only a great hardship, but a positive act of injustice ; therefore their exemption from penalty.

If the Royal College had been so remiss or supine in the past, as to allow a period of nearly forty years to elapse without obtaining legal protection for its graduates, it was considered that the consequence of this remissness should not fall upon the innocent, who at no time were committing an indictable offence by styling themselves Veterinary Surgeons in order to gain a livelihood by the practice of veterinary medicine and surgery.

But the Government, considerately for the qualified members of the profession and the public, made this exemption retrospective for a period of five years ; so that those who were to be registered must have been in continuous practice at least previous to 1876. Registration was to be made without a professional examination, and on such terms as to payment of fees and other matters as the Council of the College, with the approval of the Privy Council, might direct, the applicants producing evidence of title to registration by statutory declarations of themselves and of other persons able to testify on their behalf, or such other evidence as the Council might reasonably require.

A form for statutory declaration was drawn up by the Registration Committee appointed by the Council of the Royal College, as well as a form certifying to character and credibility, and these forms were issued to all applicants; care being taken to have included in them those sections and clauses of the Act relating to registration, and particularly the section referring to obtaining registration by false representation. Of more than two thousand forms sent to applicants, less than one thousand have been returned filled up, and from these selection for registration will be made. It will thus be seen that every care has been taken to interpret and to carry out the spirit and letter of the Act, fairly and honourably, to all those whom it affects in this matter of registration. Claimants for registration in the separate register, if they will have procured registration by means of a false statutory declaration, are liable to a very heavy penalty at any time, and to removal of their names from the register, while those who aided them by certificate are equally liable to punishment. After the declaration they have made, it is evident that equally strong proof of their disability must be produced, in order to prevent registration; as having the right of appeal to the Privy Council should this be refused, it is necessary that the Council of the Royal College should be prepared to give good reason for its refusal, and not any mere hearsay or trifling evidence.

The important question as to what effect this registration will have upon the profession has been mooted now and again, and it has also been answered on several occasions in these columns. The profession will be none the worse through the registration of those persons who do not belong to it. Registration simply protects them from the penal operation of the Act; it does not confer upon them any qualification whatever, neither can the Royal College or the public recognise them as anything different from what they have always been. The College is in no way responsible for them or their actions, and it cannot be; it cannot certify to anything with regard to them, except that they are not of its members—a fact which is also rendered apparent by their appearing in a separate and special list.

At the same time, it is well to remember that many of these persons are held in good esteem, not only by their employers, but also by members of the profession, who have amply testified to their moral and professional character. They have certainly obtained much public sympathy in their efforts to preserve themselves from starvation and extinction, and it would ill become the Royal College—now that it has obtained such valuable privileges through the Act, to constitute itself a persecuting body, and seek to punish those who have committed no offence, but who years ago had only availed themselves of an opportunity offered by the indifference or neglect of the College itself, to assume a professional title and functions, and gain a livelihood thereby.* Six

* As evidence of the strong sympathy these persons received, and the kind of opposition the Veterinary Surgeons Bill had to encounter in Parliament, we quote a sub-editorial which appeared in the *Daily Telegraph* when the measure had been introduced into the House of Lords. "Lord Aberdare, on Tuesday night, obtained a second reading in the House of Lords for a Bill which, as he explained, had for its

years ago this assumption was stopped, so far as new additions to the number are concerned, and the Veterinary Surgeons Act extinguishes it for ever. The profession can well afford to be generous and courteous towards the "Existing Practitioners," who are the last of their race ; for if they have been allowed to survive so long the fault was not theirs, but that of the Royal College. Register number One, we hope, will continue to increase more and more rapidly every year, while number Three register will continually decrease, until it is finally a blank, and the circumstance that it ever existed will in time only remain to mark a momentous turning-point in the history of veterinary medicine in these kingdoms.

THE PART PLAYED BY EARTHWORMS IN THE PROPAGATION OF ANTHRAX.

IN 1881, Koch and several other German professors published the results of their experiments with Anthrax, and these were in several points opposed to those obtained in France by Pasteur and others. In order to ascertain the truth with regard to this contradiction in most essential features of the disease, Feltz undertook a series of investigations which were brought to the notice of the Academy of Sciences in November last, and which confirm the conclusions arrived at by Pasteur.

Following the example of Koch, he mixed, in a flower-pot, a quantity of

object the prevention of the assumption of the title of veterinary surgeon by unqualified persons. No doubt Lord Aberdare is perfectly correct in saying that many persons now practise as veterinary surgeons who are without sufficient qualification for the profession. Accordingly he proposes that the law shall provide for the infliction of a heavy penalty on every person who holds himself out to the public as a duly qualified veterinary surgeon without first having become a member of the Veterinary College. The measure in that shape seems highly objectionable, and conceived in the interests of monopoly. A person who falsely describes himself as a member of the Veterinary College should most deservedly be liable to punishment. But competency in veterinary matters is not exclusively confined to members of the College. There are numbers of respectable individuals in this country, exercising the vocation of veterinarians, who justly enjoy an established reputation for knowledge and skill in such matters, but who have never gone through the curriculum of the College. Many owners of cattle prefer to employ such men to practitioners whose only claim to be selected instead is the possession of a diploma. The Bill, therefore, goes too far in declaring that no one shall call himself a veterinary surgeon without passing the College. It was argued in the House of Lords that the effect of the measure would be to raise the status of the veterinary profession, and thus induce a class of men of superior social standing to join its ranks. But farmers and other owners of cattle do not want to be restricted exclusively to the services of gentlemen who, to keep up a good social position, must charge considerably higher fees than those they now have to pay. A man who shows himself incompetent to perform the curative functions which he undertakes ceases to find employment, and in this way the public protect themselves from serious losses through ignorance or carelessness. And the College training does not necessarily result in a combination of intelligence and education, nor does it give the vast advantage of practical experience in the treatment of animals. Veterinary science has not reached a very high stage when it is unable to do more for the prevention of contagious disease than prescribe the slaughter of the animal affected and all others which have been in contact with it, the process of 'stamping out,' as it is termed. For this and other reasons the public will probably have to pay more without being better served, if the Bill now before Parliament passes *without* being considerably modified."

earth with fresh Anthrax blood and the contents of several tubes of pure cultivated virus; on this soil he placed fourteen earthworms, which soon burrowed into it. Three weeks afterwards he took therefrom six of the worms, and these he washed carefully in distilled water several times. With the contents of these worms he inoculated six series of guinea-pigs (two in each series), and the same with the water in which he had washed the worms. All the guinea-pigs of the first six series died of Anthrax within three days, the majority of those inoculated with the first washings likewise succumbed to the disease, but those inoculated with the last washings remained unaffected. These experiments left no doubt in the mind of Feltz that earthworms play a most important part in the propagation of Anthrax.

In a new series of experiments, Feltz has applied Pasteur's procedure for the attenuation of Anthrax virus, and has obtained the same results.

THE NATIONAL VETERINARY ASSOCIATION.

WE would earnestly direct attention to the National Veterinary Association's claims upon the profession for support and patronage, as it is destined, if properly managed, to effect much good by concentrating the objects and efforts of the various Veterinary Medical Societies throughout the United Kingdom, and bringing them to bear in the direction most likely to command success. Meeting only once a year, and in a different centre at each meeting, the sacrifice of time would not be great, while the subjects to be discussed would be of such moment, either from a professional or public point of view, as to deserve the collective voice and weight of the profession, and thus ensure attention. Considering the vast amount of benefit which has been derived from kindred associations in other branches of science, there can be no doubt that if this association is adequately supported, it will confer similar benefit to the profession—individually and collectively—as well as the public. The Secretaries are Mr. Banham, Downing Street, Cambridge, and Mr. Penberthy, Royal Veterinary College, Camden Town, London. The first meeting takes place in London on the day following the annual meeting of the Royal College of Veterinary Surgeons.

Review.

ANIMAL PLAGUES: THEIR HISTORY, NATURE, AND PREVENTION. By GEORGE FLEMING, F.R.C.V.S., F.R.G.S., etc. Volume II., from A.D. 1800 to 1844. (London: Baillière, Tindall, and Cox. 1882.)

(From "*The Times*" for December 26th, 1882.)

Mr. Fleming's second volume takes up the History of Animal Plagues at the beginning of this century, and carries it on to 1844. The simple fact of a bulky volume being required for the enumeration and brief description of the best known calamities of this sort in forty-four years, with here and there a suggestion for their prevention or their cure, shows the vastness of the work. On a hasty calculation there are several thousand "plagues" noticed in the two volumes; and our readers are well aware that the thirty-eight years reserved for a third volume have not been unfruitful in old or new varieties of animal plague. The work is

necessarily one of those from the study of which we rise sadder as well as wiser. Our most abiding and most recurrent estimate of Nature is her incorrupt and unassailable purity, in comparison with man and all that man has ever made. We fly from our own selves to that Nature which never changes, but remains true to its sublime original. It is emphatically said that man made the town, and God made the country. Whatever that may mean, the volumes before us show no such difference. They establish a community between man and animals, proving the world akin. There is nothing to choose between us. Under the term "Epizoöty" appear to be included all ailments of an epidemic or contagious character that can assail man or beast. The use of the word "plague" in the title is a pardonable condescension to the vulgar intelligence. Even scholars might have been staggered by a term which, besides being hard to spell and harder to pronounce, is neither English, nor Latin, nor Greek. The name matters not. The thing is legion. The greater part of Nature's realm, so fair and so peaceful as we suppose it, is in open array or in perpetual ambushade for the destruction of the rest. All the larger, higher, and nobler forms of life, man included, enjoy their pre-eminence on the terrible condition of being the object of an implacable jealousy to myriads of lower and lesser forms. These watch their opportunity, and invade us at every point. They fly, they creep, they swim; they pierce, they burrow; they enter with our meat and drink, and with the air we breathe. We are never safe from them, and our only approach to safety lies in the knowledge that we are always in danger. Sometimes it is a combination of adverse influences, or one mischief coming upon another. In that case we are warned; we see the enemy approach; but even then we may be powerless to resist. Deluges of rain, excessive drought, long and intense frost, sultry air and overcast skies, every kind of excess or of shortcoming, combining with the steady advances of some exotic pest, may so arrange themselves as to act the part of a great general carrying out some irresistible strategy. More commonly, at least to our apprehension, these plagues are unexpected and inscrutable. We sit down to their investigation when the mischief is done, and hold a national inquest on our buried flocks and herds, our empty stalls, our deserted fields and poultry yards. The books that profess to advise the agriculturist how to cure all the ills that horse, cow, pig, sheep, or fowl are heirs to are a library. The wisdom of many generations is condensed into encyclopædias for the farmer's instruction. Yet from time to time there arrive pests—visitations as our simple fathers called them—that own no precedent and submit to no orthodox prescription. At the last case of the kind we had no better plan than to follow the example of the infuriated Grecian chief, by taking the knife in hand and massacring flocks and herds.

When man is so without resource and so often driven to the counsels of desperation, it naturally occurs to ask how far he is answerable for the mischief, and whether he does not at least aggravate it. No doubt man does contribute much to the causes, the predisposition, and the spread of contagion, and to the inability of the poor creatures to withstand the attack of disease. He overworks, he underfeeds, he houses ill, he neglects,

he is too intent on what is due to himself to consider what is due to his brute associates. He exposes them to rapid alternations of heat and cold ; he sends them on long journeys, perhaps from one market to another, or receives them after a like trial without a thought of their probable condition. He is often aware that he is running the risk of contagion, but he has made up his mind to run the risk. He buys from an infected herd, or sells from one to an unwitting purchaser. Nevertheless, upon the whole, and with Mr. Fleming's bills of mortality open before us, we may confidently say that man is the great friend of the brute creation, and that his dominion is a universal blessing. In fact, he peoples the world with brute as well as human inhabitants. By destroying the old tyrants of the wood and the plain, he enables the gentle herbivorous races to multiply and to enjoy life without excessive hardship and continual terror. He finds for them food when the ground is bare, water in the worst drought, and shelter when necessary. They have not to travel many miles a day for the chance of a blade of grass or a standing pool. It is true they are subjected to certain privations and thwarted in the exercise of their natural instincts, but they are happily constituted to suffer these wrongs neither much nor long, and even to find in human attention some compensation for them. In fact, and *primâ facie*, health, strength, and happiness are the normal conditions of all the animals enjoying human protection. They are before us continually, and, in physical condition, they well stand a comparison with the human race. Many and many a philippic against political tyranny and corruption, or the still worse oppression of dominant classes, has been pointed with the remark that man does better for his horses, his dogs, and his cattle than for his human labourers. Indeed, the whole agricultural system of this country may be regarded as one vast commissariat, instituted for the special purposes of rearing, distributing, dividing, and maintaining many millions of brute creatures in the best condition practicable. When the seeds of death do begin to show themselves in the air, or in the track of strange arrivals, then it is possible not only to contend with the foe at the port and on the road, but to convert every farm into a fortress, and place every county in a state of siege.

The death-roll is now a trifling percentage, not a moiety, or the total, as in olden times. We are apt to place the extinction of wild beasts high among the boons of civilization ; but they have never been the worst enemies of the flocks and herds. The worst enemy has always been the ever-varying pest, minute and even infinitesimal in its form, and utterly inscrutable in its character, suggesting diseases of the air or the water, and suddenly decimating this or that part of the world of life, sometimes all together, man, beast, bird, and fish, the beasts and birds of prey, as well as their harmless victims. On turning over the sad records of universal suffering before us, we find it stated again and again that the bears, wolves, and foxes were seen unable to pursue or to devour their prey, and scarcely dragging their bodies wearily along. The badger, now sole survivor of the pachydermatous races, was seen overtaken by mortal agonies, and swarms of rats, that might be supposed proof against malarious influences, perished in their noisome haunts. Many a time the pure stream,

fresh from mountain and meadow, has been covered and even clogged with masses of putrefaction, all that remained of its finny inhabitants, or of the flocks and herds that had fallen into the water as they vainly tried to slake their thirst. In the face of these records it is impossible to deny that man is a great benefactor, and that our own fair isle owes to him that it wears the look of a paradise, and everybody desires to live and die in it if he can. Man, indeed, with all his domineering, selfish, and destructive qualities, appears in nature as the great physician, with his eye on the sudden symptom or the known predisposition, and continually supplying from his own superior knowledge the deficiencies of that animal instinct which is itself a miracle, but requires the miracles of human science also. It is, however, the one point on which amateur agriculturists or theoretical agriculturists are sure to find themselves most deceived. Though fully aware of the frail tenure and the delicate conditions on which man retains his own health and strength, they fancy it otherwise with the brute, as if creatures that cannot take care of themselves must needs fare better than those that can. The veterinary's bill, and perhaps a few serious casualties, soon dispel their pleasant dream. They find they have a large and often a sick family on their hands, and that, with the right of adoption, there comes also an unexpected catalogue of parental obligations. They have to physic and to nurse the various occupants of the farm as carefully as their own children, always with the disadvantage that the poor sick brutes are as babes, that cannot explain their sufferings or give any help to their own cure.

The work is in its nature and design a great storehouse of facts, suggesting many problems, and, as we approach nearer to our own times, helping to their investigation. Have there been "plagues" without a physical cause? Have some come and gone, leaving no trace behind, and never again to appear in the same type? Have some been congenital, so to speak, with the species liable to them, remaining to-day what they were at the beginning? Has the medical art, or better husbandry, or civilization itself, extinguished any of these plagues, as some fondly hope it has extinguished that terrible one which has long monopolized the name? What progress are we making against all the enemies leagued against our pastures, our stables, and our farmyards, as well as ourselves? Certainly the life of man has been made longer and pleasanter by the combined efforts of medicine and good government. Has the brute prospered equally? As we turn over these annals, commencing in the haze of myth and coming down to the first years of Queen Victoria, we may feel an ever-increasing confidence that man has gained, and is still gaining, on the common foe. But the greater his power the greater his responsibility. As he can keep out the miasma, the pest, the swarm, the flying sporule, and the mischievous weed—as he can employ many purifying elements placed all around him, it is his own fault when the invaders force his defences or creep in unawares.

As it would be vain to attempt to follow Mr. Fleming through the vast field he opens to us, we must content ourselves with a single instance, painfully familiar to many of our readers. Among the epizootic diseases of cattle, Pleuro-pneumonia has caused the greatest losses,

and raised the most inquiry in our times. There appears to be no description of animal plagues sufficiently exact to be identified with this type till about two centuries ago, though we cannot doubt its existence long before. But even the earliest record Mr. Fleming regards as doubtful. In 1691 there was an eruption of Mount Etna, with earthquakes in Western Europe, and locusts in Germany. The next year there was great disturbance in the order and character of the seasons, culminating in a terrible mildew and blight that lasted three years. These were but precursors :—

“In Hesse, from 1693, Valentine describes a pneumonic affection among cattle, which killed great numbers. He says, the preceding winter being wet, but towards the close very cold, at the beginning of spring an unusual heat set in, and continued throughout the whole summer, which sudden change produced an unequal and unnatural motion of the humours and breath, followed by death to man and beast. Oxen and cows succumbed in numbers. Among other causes, a corrosive dew, which spotted linen with marks more or less dark-coloured and corroded everything, was supposed to produce ill-effects. From the observations of the butchers, it was proved that these animals died from pulmonary Phthisis, to which no doubt the severe cold after the intense heat much contributed. At the end of July and the beginning of August, besides Dysentery and malignant fevers, a certain intermittent fever, like Tertian Fever, attacked man. Wirth and a few other veterinary writers have imagined this outbreak to be an epizooty of contagious Pleuro-pneumonia ; but there is every reason to doubt the correctness of their surmise. That malady was not known for certain till a later period.”

Again, the year 1713 was most unpropitious for man and beast—indeed, for all animal life. The wild creatures suffered with the tame. Besides a new plague of mice, that alone seemed to profit by the general destruction, the “Cattle Plague,” distinctly so described, raged over Europe. According to Wirth, the epizootic Pleuro-pneumonia of cattle was present in several cantons of Switzerland and in Swabia in this and the following year. The seasons again fell out of order in 1725. The summer was exceedingly wet and damp, and the following winter cold and long. It was a year of blight, the like of which had never been heard of in England. The next year was exceedingly dry and hot. Honey-dew and rust were very abundant in the crops and forage, and this was regarded as the cause of the great mortality among cattle. The deer perished in numbers, and even the fish. On the authority of Wirth, Mr. Fleming states that the Pleuro-pneumonia (bovine) spread everywhere in Switzerland and in the neighbouring countries. It appeared in Switzerland again in 1764. In the year 1769, after a rainy year and a bad harvest, there was much disease of the sort arising from unwholesome food. Among other apparent consequences was the following :—

“Over a wide extent of the north of France an epizooty was doing much injury to cows and horses. It was named in Franche-Comté *murie*. In Hainault and Champagne it was particularly noticed. At Avesnes it first broke out among the horses of two regiments of dragoons stationed there, and from thence it extended among the cattle in the Election of Joinville. Cough, high fever, and prostration were the first symptoms ; after these appeared nausea, suspension of rumination (if in cattle), the breath fetid, the mouth hot and dry, discharge by the nostrils of thick, foul-smelling matters ; but a continuous cough, feebleness, great difficulty in breathing, redness of the eyes, dryness of the tongue and mouth, loud *râles* in the air-passages, the breath becoming more fetid, all indicated the approach of death ; their absence gave tokens of a favourable recovery. An autopsy revealed congestion, lividity, and ecchymosis

of the lungs, with abscesses or gangrenous spots on their surface, and flakes of gelatinous matter of various colours. In the texture of the lungs were found purulent infiltrations, which broke up the structure of the lobes. These organs adhered to the pleuræ, which often looked thickened, inflamed, suppurating, or gangrenous. Considerable effusions of reddish, putrid, foamy fluid were found in the thorax, and sometimes pus, etc. It was thought that the origin of the epizoöty was due to the variations in the atmosphere, cold and heavy rains, the sudden transition from hot stables to the cold air, or exposure to these rains. It was termed an acute inflammatory fever, or false malignant peri-pneumonia. This disease, it is added, though annual and familiar in our climate, often even epizoötic, is scarcely believed to be contagious; prudence, nevertheless, should make us act as if it were. The ventilation of the stables should be well attended to; sudden removal from heat to cold should be avoided, and the sick animals ought to be kept in an equable temperature, and have only tepid gruel to drink. The symptoms were supposed to indicate a gangrenous inflammation of the lungs. The Veterinary School at Alfort was consulted, and some of its pupils were despatched to the districts where the disease was most deadly. The measures they proposed had the happiest results, for whereas, before their arrival, the animals were dying in crowds, they were now able to save 140 out of 160."

Upon this Mr. Fleming observes that the *murie* could not be bovine contagious Pleuro-pneumonia, inasmuch as horses as well as cattle were attacked, and the proportion of recoveries by medical treatment stated above is never reached in the deadly lung disease of our days. In the year 1745, says our author, the immortal Haller published his investigations on the nature of an epizoöty which had several times been observed in Switzerland. The great physician thought it was the Cattle Plague (then committing extensive depredations), but no one can read his description of the Swiss malady, Mr. Fleming observes, without surmising that it is a different disease, and in all probability the bovine contagious Pleuro-pneumonia. Such an authority, he proceeds to say, needs no apology for being quoted, especially as his preventive measures are worthy of notice, and would have saved this country a great loss had they been adopted in recent days. For the copious quotations themselves we must refer to the book, as they are too long for these columns. In explanation of the mistake he ascribes to Haller, Mr. Fleming observes that the Cattle Plague and bovine contagious Pleuro-pneumonia were generally co-existing, and that while Switzerland was free from the former it appeared to be the permanent seat of the latter, both the immunity and the liability being attributable to geographical causes. It has been several times observed in visitations of Cholera in our own country, that where there was not Cholera there was Typhus Fever, or *vice versâ*. About 1779, contagious Pleuro-pneumonia, now thoroughly ascertained and distinguished from other cattle plagues, showed itself in Upper Silesia and Istria, holding its ground for many years, and spreading to Bavaria, where it continued to reappear far into this century. The wars of the French Revolution drew large quantities of cattle from the neighbouring countries, and the result was the prevalence of this epizoöty in Dauphiné, the Vosges, and Piedmont, and up to Paris itself, that city becoming in its turn the centre of contagion, following the track of the Revolutionary armies. From this time, for a quarter of a century, there was seen all over the Continent that sequence of pest upon war noticed by the historian of the Peloponnesian War. Contagious Pleuro-pneumonia appeared in Italy in 1815. Under 1822, Mr. Fleming says:—

“ Before this period, according to M. Tisserant, bovine contagious Pleuro-pneumonia was entirely unknown to the department of Ardèche, France ; but in this year it made its appearance there. It would seem that at this time oxen were, for the most part, employed to tow the boats trafficking on the Rhone between Lyons and the sea, and that the majority of these animals came from Franche-Comté. In winter, when the river traffic was less active than at other seasons, these bullocks were depastured on the mountains in the neighbourhood. In 1822, a certain number of them so depastured were found to be diseased, and these propagated the malady. Nevertheless, it being winter, and the native cattle nearly all kept housed, without much communication between the stables, the contagion did not spread to any great distance, and was not long in being eradicated. It appeared, however, again in 1847.”

Four years after, Mr. Fleming notes a similar instance of contagion from the same offending source :—

“ Bovine contagious Pleuro-pneumonia appears to have been entirely unknown in the department of the Nord until 1826. According to M. Lecoq, it owed its introduction to the following circumstance :—This rich department, in order to have its surplus forage profitably utilized, purchased every year in Franche-Comté considerable droves of cattle ; and as the disease was present in that region, these droves carried the deadly contagion from their native mountains. For several years it apparently only affected cattle which were strangers to the department ; but the disease gradually spread among the indigenous herds, and is now enzoötic among them. It has occasioned most serious losses.”

From France the disease passed into Belgium and Holland :—

“ This insidious plague was imported into Belgium as early as 1827, and proved a dreadful infliction on the Belgian farmers, travelling from place to place, till the whole of Flanders was invaded. It has been remarked that no country ever suffered so much from this malady as Holland. It received the infection in 1827—before the separation between it and Belgium—in the, at that period, southern provinces of the kingdom, particularly in Brussels, Mechlin, Louvain, and Diest. At a later date it showed itself in Hainault and West Flanders, and in the year 1833 it appeared in all its malignity in what we now call Holland. In that year it broke out on a farm in Gelderland, and from this centre it spread over the whole country.”

In 1831 the disease appeared in Seine Inférieure, and increased till 1839. It was very deadly in Lombardy about 1836. It caused great havoc in Holland from 1837 to 1839. No fewer than 28,489 head of cattle were lost. The Government gave compensation to the amount of thirty golden florins for every animal destroyed to stay the contagion, and in this way spent 678,089 florins. At the same time it was causing great losses in Lithuania and as near home as the Pas de Calais, in the marshy meadows south of Boulogne, in the department of the Seine, and specially in the rich pastures of the Valley of Bray—the dairy land of Paris. It was noticeable that the disease did not penetrate Cotentin, La Vendée, Brittany, or Limousin. Professor Delafond was sent to Bray, and he drew up a *mémoire* of his investigations. It was now spreading from farm to farm and from one district to another in the Vosges department, where it was followed up, investigated, and described by M. Mathieu, and in the cantons Vaud and Fribourg, where it was elaborately described by M. de la Harpe, of Lausanne. Mr. Fleming gives long quotations from the *mémoires* written by these authorities, which leave in his mind no doubt of the highly contagious character of the disease, and fortunately as little doubt as to the efficacy of judicious and timely precautions against its spread.

Fortunately, too, these precautions are not of a difficult, costly, or out-of-the-way character. They are only such as common sense and humanity would suggest, and the only wonder is that it should be found necessary to suggest them. If the poor creatures are packed close in hot, stenchy, unventilated stables, and exposed the rest of the year to rapid alternations of heat and cold, or to damp meadows and low-lying fog, the only wonder is that they should require any contagion to catch a lung disease. At length, in the memorable year 1841, the contagious Pleuro-pneumonia, after establishing itself in the surrounding countries, now invaded this island. Arriving at Liverpool and other ports it made them centres of contagion. Wherever the diseased or barely infected cattle came, they carried and left in their track the seeds of contagion; on shipboard, in railway trucks, on the common roads, in stables, wherever they trod, or stood, or ate, or drank. Mr. Fleming describes numerous outbreaks at a time when so little was known of the disease in this country, that it was generally mistaken for something more familiar to the cattle doctors. Our own arrangements as regards cattle are favourable for their isolation, and consequently for their safety against contagion, our markets and fairs being the only exception. But we are not prepared for the treatment of a pestilence when it has actually come. Mr. Fleming quotes numerous British medical reports, and they are interesting, but they do not show the same amount of professional knowledge as the Continental reports quoted, and when our Government appointed an eminent man to investigate and report on the new disease, he betrayed, in Mr. Fleming's opinion, a great ignorance of comparative pathology. Whether the disease was really contagious was for some time a burning question, indeed a political one, but our author adduces a great array of facts that seem to leave no doubt on the point. Bovine Pleuro-pneumonia and other diseases of the lungs are common enough, but an examination of the lungs after death establishes a perceptible difference between the contagious and non-contagious disease. Like other pests, this seems to run its course and wear itself out. It destroys that which it feeds upon; but only to leave the coast clear for some new visitation.

As we have explained above, we have only given the history of the contagious Pleuro-pneumonia as one example out of many. There is not a single creature that enters into our domestic economy, our parlours, our stables, our gardens, our amusements, or our sports; hardly a creature coming at all under our observation, without its hosts of plagues, and its full share of special or common troubles. Mr. Fleming includes all animated nature under his purview, and even if he shows that the task is ever gaining upon us, and man's charity to the brute will never have need to fail, at all events he extends the range of human sympathies, and shows that in some important respects man, beast, bird, fish, and creeping thing, and even the plant in forest, field, or garden, are all akin.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF COUNCIL, HELD JANUARY 5TH, 1883.

G. FLEMING, Esq., in the Chair.

Members present—Sir F. Fitzwygram; Professors Brown, Robertson, Walley, Williams; Messrs. Anderton, Ball, Blakeway, Cartledge, Cartwright, Collins, P.V.S.A.; Cox, Dray, Gowing, Greaves, Harpley, Perrins, Simcocks, Whittle, Woods, Wragg, Taylor.

The notice of meeting was read.

The minutes of the previous quarterly meeting were taken as read.

Letters were read from Messrs. Simonds and Reynolds, and a telegram from Mr. Simpson regretting their inability to attend.

Presentations to the library and museum were announced from Professor Brown, F. F. Collins, Esq., and the Editors of the veterinary and medical journals.

The thanks of the Council were accorded to those gentlemen.

Diplomas were granted to Messrs. J. Smith, P. Hampton, and G. S. Heatley, holders of the Highland and Agricultural Society's Certificate.

Letters were read from the recently appointed Examiners, acknowledging the honour of their election.

A letter from Dr. Dunsmure, resigning his office as Secretary to the Scottish Section of the Court of Examiners.

The PRESIDENT stated that on the receipt of Dr. Dunsmure's resignation he had selected Mr. Rutherford, of Edinburgh, to act as Secretary *pro tem*.

A vote of thanks was accorded to Dr. Dunsmure for his past services, and the Secretary was also directed to convey to him the condolence of the Council at his recent bereavement.

It was agreed that Mr. Rutherford's appointment be confirmed forthwith, and that his allowance as Secretary be the same as that of the retiring one.

The Examinations were fixed to commence in London on the 8th and in Scotland on the 15th inst.

A letter was read from Mr. Nicholson, M.P., on behalf of an "Existing Practitioner," who was refused Registration, his application not having been sent in until after the prescribed time.

The Secretary was instructed to inform Mr. Nicholson as to the facts of the case, and to inform him that the application was too late.

Letters with reference to Registration from Captain Russell and the Liverpool Society were directed to stand over until the Registration Committee had again met and sent in their Report.

The Report of the Finance Committee was read.

Mr. DRAY reported the amount of the Registration Fees received up to date, and pointed out that a considerable portion of that amount would have to be returned to applicants who were ineligible for Registration. The Committee approved the recommendation of the Secretary that the two accounts be merged into one, and that the expenses attendant on Registration be paid out of the Registration Fees.

On the motion of Professor WALLEY, seconded by Mr. WHITTLE, the Report was agreed to.

Mr. DRAY proposed and Mr. HARPLEY seconded, that cheques be drawn to meet the liabilities of the Royal College.

Registration Committee's Report.

The Report having been read,

The PRESIDENT, with regard to Query I., said a number of applications

were sent in after the 27th of August, and were rejected as being too late. The applicants then applied to the Vice-President of the Privy Council, and said they had been under a misapprehension as to the period when they should send in their applications. It was therefore suggested to the Committee that it would be advisable to extend the time, and it was accordingly extended until the meeting of the Committee, when it was decided that no further application should be received. With reference to the second query, the Council would no doubt acquiesce in a Supplemental List being sent out to the profession as complete as possible. Fees could not be returned to unsuccessful applicants until the whole matter was settled. The form of Certificate to be sent to each practitioner had better be left for the present.

Parliamentary Committee's Report.

The Report of the Parliamentary Committee was read, and also the following proposed Supplemental Charter.

VICTORIA, by the Grace of God, of Great Britain and Ireland, Queen, Defender of the Faith. To all to whom these presents shall come, greeting :—

WHEREAS by Our Royal Charter or Letters Patent, granted on the 8th day of March, in the seventh year of our reign, and hereinafter referred to as the Charter of 1844, WE were graciously pleased to grant, ordain, and declare that THOMAS TURNER, WILLIAM JOSEPH GOODWIN, THOMAS MAYER, WILLIAM DICK, WILLIAM SEWELL, CHARLES SPOONER, and JAMES BEART SIMONDS, together with such other persons as then held certificates of qualification to practise as Veterinary Surgeons granted by the Royal Veterinary College of London, or by the Veterinary College of Edinburgh respectively, and such other persons as then were or might thereafter become Students of the Royal Veterinary College of London, or of the Veterinary College of Edinburgh, or of such other Veterinary Colleges, corporate or unincorporate, as then were or thereafter should be established for the purposes of education in Veterinary Surgery, whether in London or elsewhere in the United Kingdom, and which We or our royal successors should under our sign manual authorise in that behalf, and should pass such examination as might be required by the orders, rules, and bye-laws which should be framed and confirmed pursuant to such Charter or Letters Patent, should be members of and form one body politic and corporate by the name of "The Royal College of Veterinary Surgeons" (hereinafter referred to as the "Royal College"), by which name they should have a perpetual succession, and a common seal, with such powers as in the same Charter mentioned :

AND WHEREAS by our Royal Charter or Letters Patent, granted respectively on the 23rd day of August, in the fortieth day of our reign, and on the 15th day of January, in the forty-second year of our reign (hereinafter respectively referred to as the Charter of 1876 and the Charter of 1879), We did make further provision for the government and regulation of the affairs of the said College :

AND WHEREAS by the Veterinary Surgeons Act, 1881, further provision was made for keeping a Register of Veterinary Surgeons directed to be kept by the Charter of 1876, and for preventing unqualified persons assuming title of Veterinary Surgeon or Veterinary Practitioner or other similar title, and for other purposes ; and the said Charters of 1844, 1876, and 1879, were confirmed, except so far as altered or inconsistent with the said Act, but not so as to prevent the making of any amendment thereof or addition thereto by any supplemental Charter not being inconsistent with the said Act :

AND WHEREAS the Charter of 1844 authorises the Council of the said Royal College from time to time to make, alter, suspend, and repeal orders, rules, and bye-laws for (among other things) fixing and determining the times and places and manner of examining Students educated at the said Royal Veterinary College of London or the Veterinary College of Edinburgh or such other Veterinary Colleges as hereinbefore mentioned, who may be desirous of becoming members of the said Royal College, and for regulating the nature and extent of such examinations, and for the appointment of persons to examine and determine upon the fitness and qualifications of such Students, and for the admission or rejection of such Students as members of the said Royal College.

AND WHEREAS doubts have been raised as to the extent of the power of the Council to make orders, rules, or bye-laws, under the provisions of the Charter of 1844, and it appears to us expedient to amend these provisions :

AND WHEREAS by the Charter of 1844 the fee or fees chargeable for admission as a member of the said Royal College is or are limited to a maximum sum of Ten Guineas, and in view of the increased expense of holding examinations of candidates for membership consequent on the progress and extension of veterinary knowledge, it appears to us expedient to authorise an increase of the said maximum to a sum not exceeding Fifteen Guineas, and also to authorise the Council of the said Royal College to demand and receive a fee or fees in respect of registration of any person as a member of the said Royal College not exceeding Five Guineas :

AND WHEREAS it is expedient to make provision respecting the grant of the Diploma of Membership of the said Royal College to persons entitled under section 13 of the Veterinary Surgeons Act, 1881, to be registered as colonial or foreign practitioners :

AND WHEREAS the provisions of the Charter of 1844 respecting the date of retirement from office of the President, Vice-Presidents, and Secretary require amendment :

AND WHEREAS under the Charter of 1844 the President, Vice-Presidents, and Secretary of the said Royal College are appointed at a meeting of the Council held in every year before the expiration of one calendar month from the date of the annual general meeting, and by the Charter of 1876 the Council of the said Royal College are directed on the day of the annual general meeting of the members of the said Royal College in every year to appoint a fit and proper person as a Registrar, and it appears to us expedient that the Registrar be also appointed in every year at the same meeting as the President, Vice-Presidents, and Secretary :

Now KNOW YE that We, of our especial grace and mere motion, at the humble petition of the said Royal College, have willed, ordained, constituted, declared, and granted, and by these presents for us, our heirs, and successors, do will, ordain, constitute, and declare, and unto the said College do grant, in manner following (that is to say) :

1. It shall be lawful for the Council of the said Royal College (without prejudice to any power conferred by the Charters of 1844, 1876, and 1879) to make any orders, rules, or bye-laws for prescribing or regulating, in the case of Students of any of the Veterinary Colleges hereinbefore mentioned who may be desirous of becoming members of the said Royal College, all or any of the following matters (that is to say) :

- (1) The period of pupillage with a registered Veterinary Surgeon or Surgeons before admission as a member of the said Royal College.
- (2) The minimum age of candidates for examination or admission as members of the said Royal College.

Mr. GREAVES regretted to find himself at variance with Mr. Taylor.

There was no more important question than that involved in the pupilage clause. They wished to be able to insist upon a candidate receiving practical instruction before applying for his diploma. At present they had not that power, and he was, therefore, entirely in favour of asking Parliament for it.

Mr. TAYLOR said the Council had the power already to make the practical examination as severe and as long as they chose, but they ought not to have power to dictate to the teaching schools that their pupils should go and do this, that, and the other.

Professor WILLIAMS thought that the carrying out of the pupilage clause was a matter of impossibility. Veterinary surgeons who had any practice at all would very often decline to have anything to do with pupils, and if they did take them they would never teach them anything. Then, with regard to the expense, did the profession as a whole offer parents and guardians a sufficient inducement to pay large fees? He believed that if the clause were insisted upon they would open the way for more quacks than ever to poach on their domain. The teaching schools were accused of selfish motives, but they had a far greater interest at stake than any member of that Council in the welfare of the profession, and, therefore, before legislating upon any question affecting their interests, their interests ought to be taken into careful consideration. He believed that the clause was directly opposed to the contract they had entered into with the Government, and he should therefore oppose it as far as he possibly could.

Professor WALLEY said it seemed to be forgotten by those who argued in favour of this clause that they had now a curriculum extending in any case over two and a half years, and that in some instances men were at the Colleges upwards of four years. Was the profession worth this, especially in such a country as Scotland, where men had often to work hard to support themselves at the colleges, and were as good men, nevertheless, as any in the profession? He should oppose the clause as unnecessary, considering the extended curriculum and the power already possessed by the Examiners.

Professor ROBERTSON said he had always opposed placing any weight upon the shoulders of their students that they were not able to bear, and this was the heaviest of them all. It would make the profession so expensive that men could not afford to enter it.

The PRESIDENT said the members of the Committee present at the modification of the present draft were entirely in favour of this clause. He did not think it contained anything which any principal or teacher in a school should object to. It must be for the interest of the schools, as of the entire body of the profession, that the graduates should be able to handle animals and go about them as practical men. Facilities for acquiring this knowledge were not given by the schools, and it was perfectly certain that young men who left College without having been with a veterinary surgeon before receiving their diploma were not fitted to practise in a country district. The pupil who went to a man with a mixed practice would, if fairly dealt with, be far more competent to practise his profession, especially at the commencement of his career, than if he had simply remained at College. The Council represented the profession, and it was for them to say whether this pupilage clause should be insisted upon.

Professor BROWN said there could not be any doubt as to the enormous advantage of practical experience to pupils before commencing anything like public practice. The question to decide was as to the manner in which their knowledge should be obtained. In order to test the feeling of the Council, he would propose that the Charter be applied for as it stood.

Mr. WOODS seconded the motion.

Mr. TAYLOR proposed as an amendment that the Charter be not applied for for the next twelve months.

Professor WALLEY seconded the amendment.

The amendment was put to the Council and declared to be lost.

The motion that the Supplemental Charter as a whole be applied for was put and carried.

Examination Committee's Report.

The report of the Examination Committee was read as follows :—

At the several meetings of this Committee, the following scheme was devised and subsequently submitted to the Council :—

1. That on and after January 1st, 1884, Students who enter the Veterinary Schools shall at their First Examination by the Royal College of Veterinary Surgeons undergo an Examination in the under-mentioned subjects—Part I. and Part II.—or produce a Certificate of having passed an Examination by some recognised educational body, for the following :—

(I.) For Matriculation, or any higher Examination for Degrees, or one of the “Local Examinations” held by a University in the United Kingdom, or by a Colonial or Foreign University recognised by the Council of this College.

(II.) For the Certificates of the First, Second, or Third Class—provided such Certificate contains the obligatory subjects—held by the College of Preceptors.

(III.) An Examination recognised by the General Medical Council as exempting Candidates from the Preliminary Literary Examinations of the various Medical Corporations ; or a Certificate of Examination for Degrees in Law ; or the Primary Certificate of the Pharmaceutical Society and College of Dentistry.

2. That Students who do not produce one or other of the foregoing Certificates shall be examined by the Board of Examiners of the College of Preceptors, under the direction and supervision of this College. The nature and extent of this Examination shall be fixed by the Council from time to time, and will be of two grades—(I.) That which will qualify only for the *Membership*, and that which will entitle the Candidate to compete for the *Fellowship* Degree. The Examination in both grades shall consist of two parts—one *obligatory*, and the other *voluntary*.

The following are the subjects of this Examination proposed for the year 1884 :—

PART I.

Obligatory Subjects.

1. Reading aloud.
2. Writing from dictation.
3. English Grammar, with Parsing and Composition.
4. Arithmetic—the Simple and Compound Rules, with Vulgar and Decimal Fractions.
5. Elementary English History and Geography.
6. Rudimentary Latin, French, or German.

The maximum number of marks for each subject is 100, and the minimum for passing 30.

PART II.

Voluntary Subjects.

1. English Literature and Composition.
2. History, Ancient and Modern.
3. Euclid.
4. Algebra.
5. Natural History.

The maximum number of marks for each subject is 100, and the minimum for passing 50.

3. That Candidates for *Membership* shall be required to pass at one and the same Examination the whole of the subjects of Part I., and failure in any of the subjects will necessitate a Re-examination in these subjects.

4. That Candidates for the *Fellowship* shall, in addition to the subjects of Part I., be required to pass in *three* of the subjects of Part II. at their option.

N.B.—It is to be understood that the above or Certificates of Examinations are not intended to supersede or interfere with the Matriculation Examination of the Schools.

EXAMINATIONS.

The Committee appointed to report upon the Professional Examinations has recommended that there be only two Examinations held during the year, *i.e.*, April and July, and that Students for the Final Examination be all examined in the Practical before the Oral portion. Each Student is to be examined by each of the four Examiners at the Practical Examination for not less than a quarter of an hour. These alterations to come into operation after January, 1884.

The PRESIDENT said a discussion took place, at the last meeting of the Council, on the Report, as to the Education Scheme. He had since been informed, by several members, that they were entirely misled by the heading on the Report, which had reference to a Matriculation Scheme, and that on that heading they argued against it, thinking that it interfered with the entrance of students to the Schools; and the decision of the Council was "that it lie on the table." Seeing that misapprehension had arisen in that way, and finding that the decision of the Council was entirely opposed to the desire of the Committee, he had the Report amended and circulated. He had now, under these circumstances, taken the liberty of bringing it forward for discussion in the form in which it was intended to have been laid before them by the Examination Committee. There was no intention whatever of preventing students from entering the schools; the desire of the profession was that the holders of the diploma should be men possessing a certain amount of general education. He admitted that the Council had no power to enforce matriculation. They were only an examining body, and all they sought was to have power, before examining the students as to their professional education, to examine them in general knowledge. If, however, gentlemen who came up for examination would bring a certificate that they had passed a certain standard of education of some recognised Educational Body, that would be received as satisfactory. This would in no way interfere with the schools, and he thought it would be casting a reflection upon the Committee if this subject were not discussed and brought to a conclusion.

Prof. WALLEY said they all intended that the students should be properly educated; but what they aimed at was simply this—That there should be an uniform scheme of Education and Matriculation Examination, and he did not himself see what they were going to gain by adopting the Report. If, however, the Report were adopted, he thought they should recognise the Preliminary Examination of Law, of the Pharmaceutical Society and of the Dentists, and he would propose that those certificates should be added to the Report.

Professor ROBERTSON suggested that instead of the words "On and after the first of July, a student at his first examination shall present," they should insert the words "All students who enter the schools on or after the first of Jan, 1884." That would exempt those at present in the schools, and would let fresh students know that they were entering on these new conditions. With respect to No. 2, he should ask to insert, "provided such certificates take up or include all of the obligatory subjects."

Professor WALLEY moved that the clause as to examinations be altered so as to read, "that in the C examination the oral shall precede the practical part, and that any student failing in the former shall not be allowed to present himself for the latter; but if he succeed in the oral and fail in the practical, he shall not again be examined in the subjects comprised in the oral examination." He said the matter had been discussed thoroughly on previous occasions. The great alteration was that if a man passed his oral examination he might go away to get his practical knowledge where he liked. The schools did not want the men on their hands for practical work at all; they wanted them to go to practitioners, and when once they had passed the oral it was too bad to ask men to go on studying the oral when they were only deficient practically.

The PRESIDENT said so long as the student was under tuition, there ought to be some guarantee that the instruction was properly carried out. If the motion was adopted it would be found that the schools were throwing off the responsibility of practical teaching, and by so doing they were bringing forward one of the strongest arguments possible in favour of a period of pupilage.

Sir FREDERICK FITZWYGRAM said it was admitted that the schools could not teach practice, and therefore he could see no object in remanding a student back to a school to obtain his practical knowledge. It was very much better that he should first of all acquire his theoretical knowledge, and if necessary he should be called upon to pass a practical examination subsequently.

Mr. CARTLEDGE thought that the student, when going up for his practical examination, should give a certificate from a practical man to the effect that he had been with him, and had seen practice.

Professor WILLIAMS supported the motion, believing it to be very unjust to make a man come up again to an examination which he had already passed. He was quite willing to second Professor Walley's motion.

Professor WALLEY said he would add to his motion the amendment proposed by Mr. Cartledge—"That the student should present a certificate from the school or practitioner with whom he had been working."

The amendment was put to the Council and lost, eight voting for it and nine against.

The PRESIDENT said the Committee proposed that there should be only two examinations in the year instead of three.

Professor WALLEY proposed that in the first and second examinations there should be three examinations in the year, and in the final, two.

This motion was not seconded.

The PRESIDENT said with regard to the time occupied in the practical examination, it was laid down that each student was to be examined by each of the four Examiners for a quarter of an hour.

Mr. TAYLOR moved, "That it be not less than a quarter of an hour," leaving it to the option of the Examiners.

Mr. GREAVES seconded the motion.

Professor WILLIAMS proposed that the words stand—"at the option of the Examiners," without the "quarter of an hour."

Professor WALLEY seconded the amendment.

The amendment was put to the Council and lost.

The motion moved by Mr. Taylor was carried.

On the motion of Mr. TAYLOR, seconded by Mr. DRAY, the Report of the Examination Committee was then agreed to.

Professor WALLEY moved, "That Bye-law 34 be rescinded, or its provisions be more strictly enforced." The bye-law he said, provided that if a student was rejected at any one of the examinations he must go back to the College at which he had been studying for a certain period before again pre-

senting himself for examination. He mentioned two instances in which the bye-law had been broken—students of the Edinburgh Veterinary College, who had been rejected at their first examinations having gone elsewhere, in one case to the New Veterinary College, and in the other to Glasgow, and then been allowed to return and present themselves for their examination. What he asked was, either that the rule should be rescinded, or that it should be properly carried out.

The PRESIDENT said there was no doubt that all their bye-laws should be carried out, but this could not be done unless those who were chiefly concerned informed the Secretary when any infringement had taken place.

Professor WILLIAMS said he was not aware that the bye-law had ever been infringed by his college in any shape or form.

The subject then dropped, the understanding being that the bye-law would be enforced.

Professor WALLEY then moved, "That the latter part of Bye-law 46 (now 47) read thus: 'A student holding a foreign or colonial veterinary diploma from any veterinary examining body recognised by the Council of the Royal College of Veterinary Surgeons, shall be exempt from attendance on the course of lectures for the two first years, and from the examinations at the end of those years respectively.'"

Professor WILLIAMS seconded, and the President supported the motion, which was agreed to.

Professor WALLEY then suggested alterations in the system of marking adopted in the examinations for the diploma. At present numbers were used. The student must obtain a minimum number in each subject, and also in the aggregate of subjects. That system was unfair to the student, for if a man passed in all the subjects, why should they require an aggregate minimum? He thought it would be better to use such terms as "Good," "Sufficient," "Indifferent," or "Bad." He would propose that those words should be substituted henceforth, instead of the system of figures.

Mr. HARPLEY entirely agreed as to the unfairness of having aggregate numbers. Supposing a person were examined in four subjects, and obtained the minimum number (25) in each, why should he be required to obtain an aggregate number of 105 to entitle him to pass?

The PRESIDENT said the minimum number had always been regarded as equal to "indifferent," and a student with two "indifferents" had been rejected.

The motion was seconded by Mr. CARTWRIGHT, and agreed to.

Professor WALLEY then moved that the diploma should be printed on vellum.

The Secretary was directed to inquire as to the probable cost of this.

Messrs. Broad and Woodger were elected auditors.

The SECRETARY read the obituary list.

Messrs. Duguid, Mayer, Edgar, Barnes, Drewe, and Gresswell were proposed as Examiners for the Royal Agricultural Society's prizes.

A ballot being taken, Messrs. Edgar, Barnes, and Duguid were declared to be elected to this office.

SPECIAL MEETING.

The PRESIDENT said it was well known to the majority of practitioners in London, that a member of the profession had for a number of years been bringing it into disrepute by defrauding people of money. Recently, this person and a number of others were apprehended for cheating people in the purchase of horses. The trial came on and ended in the defendants, who were horse-copers, except the member in question, confessing that they had been guilty of conspiracy, and they were let go with the intimation that

they were to come up for judgment when called upon. He therefore proposed in the terms of the Act of Parliament, "That a committee be appointed to inquire into the case alluded to, to take evidence, and then to report thereon to the Council."

Mr. DRAY seconded the motion, which was agreed to.

Messrs. Wragg, Robinson, and Cox were appointed to serve on this Committee.

The proceedings closed with a vote of thanks to the President for his able conduct in the chair.

IRISH CENTRAL VETERINARY MEDICAL SOCIETY.

THE annual meeting of this society was held on 9th January in the Theatre of the Royal Dublin Society. The following gentlemen were present, in addition to a good attendance of ordinary members and some visitors :

Mr. T. D. Lambert, honorary associate and out-going president ; Mr. L. Hunter, Dublin ; Mr. W. Pallin (late 20th Hussars) ; and Inspecting Veterinary Surgeon Lambert, of the Army Veterinary Department, vice-presidents ; Mr. John Malcolm, of Enniscorthy, the president-elect for 1883 ; and the hon. secretary, Mr. Sperring, Government Veterinary Inspector, Dublin. The ordinary members also present were :—Messrs. Joseph Lawlor, Collins, Dublin ; Freeman, Kingstown ; Hedley, Miller, Government Veterinary Department ; Dr. Donnelly, Dublin ; Messrs. McKenny, Dublin ; Woodroffe, A.V.D., and O'Donel, Government Veterinary Department.

Letters of apology were received from Messrs. Ashe, Peard, Adamson, Simcocks, Prior, Preston, Newsom, and several other members. A telegram was also received from Mr. T. H. Simcocks, Drogheda, to the same effect.

The minutes of the previous meeting being read (in which it was mentioned that Mr. T. D. Lambert, the out-going president, had been elected an honorary associate of the society, in recognition of the fact that he had been the first to occupy its chair, they were signed, and the Secretary presented the report for the past year, by which it appeared that the society is in a most healthy condition, both as to its funds and its future prospects.

On the motion of Mr. PALLIN, seconded by Mr. T. D. LAMBERT, the report was unanimously adopted.

The SECRETARY then gave a short account of the manner in which he had obtained the grant of the use of the Royal Dublin Society's Lecture Theatre for the purpose of the meetings of the "Irish Central," and gratefully acknowledged the kindly manner in which Mr. R. J. Moss, F.C.S., Registrar, and Mr. David Rogers, superintendent of the Royal Dublin Society, had assisted him in the attainment of this object, and congratulated the Veterinary Society on having obtained such substantial recognition at the hands of the Council of the Royal Dublin Society.

Mr. H. J. Kelly, Government Veterinary Inspector, Ballina, was then balloted for, and unanimously elected a member of the society. Mr. McKenny, of Dublin, was proposed as a member by Mr. MALCOLM, seconded by Mr. FREEMAN ; and Mr. O'Donel was proposed as a member by Mr. T. D. LAMBERT, and seconded by Mr. SPERRING.

Mr. HEDLEY raised the question of the proposed registration of existing practitioners under the Veterinary Surgeons Act, 1881, by the R.C.V.S., and argued that although the Council was only carrying out the system which was adopted under the old Medical Act, he moved that the society should form a committee for the purpose of strenuously opposing all those persons who were not clearly entitled to it, and take every legal proceeding necessary in that behalf. The Registration Committee had recently imposed a condition on those who wished to protest against these people being regis-

tered, and that was one which was calculated to interfere with the free action of members in the matter, viz., the obligation of an affidavit in support of a protest. This he considered to be unfair to the profession.

The SECRETARY said that he felt that an emphatic protest ought to be lodged by this society against this new regulation of the Registration Committee. There was no question of a doubt that the Committee and officials had before them a long and arduous task, but if these affidavits were largely sworn by the members, that some of them would soon find themselves involved in legal proceedings with the men they were opposing. He considered that a protest made *bonâ fide* by a member of the profession, and stating good and valid reasons of objection, should be sufficient for the purposes of the Registering Committee, and this would take the form of a privileged communication; whereas an affidavit could always be called for and produced as evidence by the other side in a court of law. He was speaking to a legal friend—a Dublin barrister—on the subject, a short time since, and that friend warned him against having anything to do with swearing an affidavit on such grounds, and if this advice was good for him (the Secretary) it should be good for all the members of the society. He considered not only that an emphatic protest should be lodged, but that the Committee be asked to withdraw this regulation, as being calculated to embarrass and hamper the profession in their action with regard to the admission of these pretenders to the Register.

Several other gentlemen followed on the same side, the only dissentient being Mr. G. B. Miller, who said that the registration of a quack would not make that man one particle more a veterinary surgeon than he was before, and that the registration was only intended to protect unqualified persons, who had been earning their bread for five years before the passing of the Act by horse and cow doctoring, from the penal clauses of the Act, and that he considered for the society to have anything to say to the matter would be *infra dig.* on its part, and would be giving the registered quacks a fictitious importance which they were not entitled to. (Hear, hear.) Mr. Miller's amendment, however, was overruled, and Mr. Hedley's motion adopted.

Mr. T. D. LAMBERT took the chair, and after the usual routine business of the society, including the Secretary's and Treasurer's report, had been got through, he inducted Mr. Malcolm into the chair, and congratulated him in felicitous terms on his assumption of office as president for the year.

Mr. MALCOLM then proceeded to deliver his inaugural address. He said: Gentlemen, the pride and gratification which I feel at being called upon to preside over the deliberations of this your learned society are, I assure you, considerably qualified by a sense of the responsibility attaching to the position, and a distrust of my capability of filling it with the credit it deserves. This sense of my own shortcomings will, I trust, however, prove to be of advantage in one respect, and that is of stimulating my energies and zeal in your service, so that when the term of office for which you have so kindly elected me shall have expired I shall lay down my trust with the consciousness that I have done my best in your behalf. This day sees the anniversary of our existence as a society, and young as it is I think that its members can point with pardonable pride to its record of usefulness during the brief period of its existence. It has obtained a footing in spite of many difficulties and obstacles, not the least of which latter was the opposition which met the scheme at its foundation, when the idea was first brought before the profession in Ireland by our now Secretary and one or two hard-working members of our body. When active opposition was not met with, another formidable enemy to the scheme was found in the apathy with which, I am sorry to say, movements for the benefit of the profession are, alas! too often treated by its members. Others there were who, true

"laudatores tempora acti," sang their praises of the old time, and cynically inquired why, "if a veterinary society could not, and did not, thrive in the good old times, what prospect was there of its doing so now?" That query is sufficiently answered by the present condition and prospects of the Irish Central Veterinary Medical Society on this our anniversary. We have a large number of subscribing members on our roll, in addition to two revered names, which, "pro honoris causa," in the interest of our profession, have been placed on our roll of honorary associates. Both of these gentlemen (I need not say that I refer to Professor Ferguson and Mr. George Fleming) have taken a warm interest in our society. And although they have not, from circumstances beyond control, been able to lend us active assistance hitherto, I have every reason to believe that we shall secure their active co-operation during the ensuing year. Of Professor Ferguson, the father and acknowledged head of the profession in Ireland, I may say one thing, and that is, that our society possesses his very strongest sympathies. Of Mr. Fleming, the bright particular star in the ranks of the English section of the profession, what can I say more than that this (as every other effort to advance the interests of our body does) commands his warmest and most cordial support. At the time this society was established the profession in Ireland was unrepresented at our professional parliament, or, in other words, no Irish veterinary surgeon held a seat at the Council of the R.C.V.S. I am happy to say, however, gentlemen, that that stigma on our body in Ireland has been removed by the election of my friend Mr. Thomas H. Simcocks to that proud position. The ban of disfranchisement has been removed from us, and the views and requirements of the Irish section find an able and persistent exponent in the worthy member of our society who represents us at that board. This election, I need not remind you, was due almost entirely to the effort of our society. I say that this alone would be a sufficient evidence of the usefulness of our society, even were there no other; but I may further remind you that a short time ago I had the honour, in conjunction with my friend Thomas Drummond Lambert, your worthy and esteemed ex-president, of being delegated on your behalf to attend the inaugural meeting of the "National Veterinary Society" in London, when, I am proud to say, my co-delegate was elected a vice-president of that distinguished body, and that under its rules your President and Secretary will always have voices at its council. In that we have accomplished a thorough representation of the Irish practitioners at the fountain-heads of veterinary institutions. What more may we not accomplish in time to come? There is another good which I believe has arisen out of our meetings, and that is that they have brought together a large number of the members who were seldom or ever in the habit of meeting. Little amenities have been exchanged, friendly greetings given, opposing views discussed and settled, and the pleasant friction which opportunities of frequently meeting give have rounded off the little asperities inseparable from the encounter of those who are strangers to each other. I have thus slightly sketched the bearings of our society from a politico-professional, a representative, and a social point of view, but I feel I cannot pass from the subject without bearing my tribute of praise and thanks to the founder and mainspring of the society, without whose indefatigable energy and perseverance we should neither have existed as a society nor established it, as has been done. You all know I allude to our Secretary. Gentlemen, may I suggest that there are some diseases which I would very much desire some gentlemen to read papers on this year. First, there is Pleuro-pneumonia. There is such a diversity of opinion on this disease that it would open out a large field for discussion. We know it is infectious; that the disease commences in the bronchi, the blood becomes poisoned by the germs, inflamma-

tion takes place, which extends to the parenchymatous structure of the lungs or interlobular tissue. The pleuro pulmonalis and pleuro costalis are next involved ; then in place of exuding a sufficient portion of serum to lubricate parts and allow the lungs to move at ease, they become dry, thence the friction sound, but soon effusion of a more serious nature takes place. Lymph is formed, and adhesions take place between the pulmonalis and pleuro costalis ; consolidation, hepatization of a lung or a portion of a lung, in some cases both lungs. In the first step any veterinary surgeon may make a mistake—that is, before structural disorganisation takes place—but when it reaches the latter step no veterinary surgeon ought to make any error with regard to it. Another very good subject, in my humble opinion, would be the atmospherie influences in disease, in connection with infectious diseases, such as Pleuro-pneumonia and many others. You all know the composition of the atmosphere. It is a mechanical mixture composed of oxygen, nitrogen, carbonic acid, ozone, ammonia, and vapour of water. You may often have seen the sun shining through a window, and small particles floating in the air. Well, those particles might be the germs of disease which, under ordinary circumstances, you cannot detect. This subject, I believe, would also bring forth some very valuable information in connection with disease in general. Another very important one, and one that I thought of bringing forward myself, is the soundness and unsoundness of horses ; for you are all aware what a diversity of opinion exists among veterinarians on this very important subject—a subject which, in my mind, has done more to lower the standard of our profession than anything I am aware of. However, I hope some one more able and competent than myself will undertake the task. Glancing at those professional subjects which have been brought before the meetings of the past year, we have heard some noteworthy papers from three of our members—"Melanosis," at the hands of Mr. Ross ; "Castration," by Mr. T. H. Simcocks ; and "Influenza," by Mr. John Freeman, have each been brought forward in a most able and instructive manner, and have elicited lively and profitable discussion. Our attendances have been good, and no scientific argument has been tainted with anything like heat or extravagance, but each and all have done the very best to secure perfect harmony and good tone at our meetings ; and I am sure that this will continue to be our rule. The record of our past being briefly noticed, let us consider for a few moments two or three of the goals towards which our exertions should be directed for the future. Let each member, during the pursuit of his daily avocations, note and record, for the benefit of the society, every strange or uncommon case which comes under his notice, and take special care to bring them before the meeting following. Let us all cultivate a strict attention to professional etiquette. Let us never be guilty of any conduct towards a professional brother which we would not like to be shown towards ourselves. Let us cultivate a spirit of brotherly love and mutual respect, and show an example to the world of thorough professional union. One word, gentlemen, about our veterinary inspectors. You know the very important post veterinary inspectors fill. The very honour of all the profession is at stake, if they make a mistake ; for a mistake made by one member of our body makes an impression on the minds of a large portion of the community that we are all alike ; but at the same time the well-thinking portion of the public look over these matters. The remuneration they receive, considering the hardships they have to undergo in all kinds of weather, is very small indeed ; and I believe, if represented in a proper form to the Government, it would take their condition into consideration ; and never was there such an opportunity offered before as there is now, when Earl Spencer—who was always a true friend to the profession—is at the head of Her Majesty's Government in Ireland. There is a subject to which I may briefly allude, and that is, the advantage to be derived from cultivating as much as

possible the co-ordination of the medical profession. I say it with regret, but I say it advisedly, that I am convinced that our position as surgeons and animal physicians is, as far as status goes, largely discounted by the acts of many individual members of our profession. The popular idea of a veterinary surgeon is, I am pained to say, that we are a kind of superior farriers.

We all know, gentlemen, that our education and professional training is at least equal to that of the ordinary medical practitioner; yet, what are the relative social positions in, say, a small country town of the two men? I say that (leave, of course, the soul element out of the question) our mission of administering medical aid and relief to God's dumb creatures is fully equal to that of the human surgeon; yet the humiliating fact remains that the social position of the latter, be it a true or false one, is infinitely superior to the former. The human surgeon in his diagnosis has the advantage of two aids thereto—the subjective set of symptoms, which are appreciable by his patient, and the objective symptoms, which are appreciable by himself. *We* have not the former aid to *our* diagnosis; *we* cannot obtain from our patient an exact description of the seat of disease, by the account which the human subject can render of his sensation of particular localised pain. No, our diagnosis must be derived exclusively from the objective class of symptoms; and this, I argue, requires a much more exact knowledge of symptomatology on our part than is ever required from the ordinary medical man. Each profession may learn something from the other in a variety of ways by co-operation. Let us assert our position. Let us refuse to accept a lesser position than we as scientists and members of a learned profession are entitled to. Be assured, gentlemen, the world takes a man very largely at the value he places upon himself. Gentlemanly bearing and conversation, exact knowledge, not only of the practice but the theory of the art of which we are the exponents, combined with a demeanour which compels proper recognition and respect, go far to establish the position of a veterinary surgeon who exhibits them to be a scholar and a gentleman. Happily, of these we have many in our ranks; but how many are there also who discount this status by unworthy habits and pursuits? There are too many, alas! But let us come out from amongst them, and show them a better example. Now, gentlemen, the beginning of my task as your president is done. Let us all determine to work together for the common good. Let us eschew petty professional jealousies and crotchets at all times. May you all enjoy a prosperous and happy year, which, when it approaches its end, will still show “something attempted, something done.”

At the termination of the address, which was greeted with enthusiastic applause, Mr. W. PALLIN rose, and, in a happy speech, congratulated Mr. Malcolm on his assumption of the presidential chair, and proposed a hearty vote of thanks to that gentleman for his very interesting and eloquent address. This was seconded by Mr. HUNTER, and the meeting was brought to a close by the announcement from the Secretary, that Inspecting Veterinary Surgeon Lambert will read a paper on the “Germ Theory” in connection with diseases of animals, at the next meeting of the Society.

J. J. SPERRING, F.R.C.V.S., *Hon. Sec.*

LINCOLNSHIRE VETERINARY MEDICAL SOCIETY.

AT a meeting of veterinary surgeons of Lincolnshire and neighbouring counties (Leicestershire, Northamptonshire, and Nottinghamshire), on the 5th of December last, it was unanimously determined to form a Veterinary Medical Society, to embrace the above-mentioned counties, to be called “The Lincolnshire Veterinary Medical Society.” The inauguration of this Society

took place at the Albion Hotel, Lincoln, on Thursday, the 18th January, the following gentlemen signifying their desire to join, viz. : Capt. R. H. Russell, Grantham, President ; Mr. H. Howre, Lincoln ; Mr. Jas. Mackinder, Peterborough ; Mr. W. H. Brooks, Fulbeck, Vice-Presidents ; Mr. W. Stanley Carless, Lincoln, Treasurer and Secretary ; Mr. W. A. Field, Brigg ; Mr. F. A. Holmes, Hemswell ; Mr. George Whitworth, Grantham ; Mr. F. Spencer, Wragley ; Mr. J. W. Gresswell, Peterborough ; Mr. John Sant, Lincoln ; Mr. J. Brown, Navenby ; Mr. T. E. Smith, Market Rasen ; Mr. Kirtlan Smith, Louth ; Mr. R. T. Hardy, Sleaford ; Mr. W. Thos. Gooseman, Barton-on-Humber ; Mr. T. Runciman, Market Deeping ; Mr. Henry Hicks, Netheringham ; Mr. George Goodacre, Crowle ; Mr. R. C. Thompson, Bassingham ; Mr. J. Hoole, Sleaford. With such an array of prominent men in the profession, this Society promises to be a success, and, considering the important matters now on the *tapis* as regards veterinary science, we admit the necessity of veterinary surgeons banding themselves together, not only for the purpose of defending their own interests, but also to work for the general advancement.

SCOTTISH METROPOLITAN VETERINARY MEDICAL ASSOCIATION.

A QUARTERLY meeting of the above Society was held in the London Hotel, St. Andrew's Square, Edinburgh, on Wednesday, Nov. 15th. The President, C. Cunningham, Esq., M.R.C.V.S., in the chair.

Present :—Messrs. Pottie, Paisley ; Mitchell, Glasgow ; Robinson, Greenock ; Clark, Cupar Angus ; Thompson, Aspatia ; Potts, Wigton ; Young, East Calder ; Aitken, Dalkeith ; Fairbairn, and W. O. Williams, Edinburgh ; Storrie, East Linton ; Cameron, Berwick-on-Tweed ; Rutherford and Reid, Leith ; McLaren, Platt, Professors Walley, McFadyean and Lewis, C. Philips, Esq., 3rd Dragoon Guards, a few friends, the representatives of the press, and the Secretary.

The minutes of last meeting having been read and confirmed, the Secretary read some correspondence relative to the proposed British National Veterinary Congress, the Fleming Testimonial Fund, and the first annual meeting and dinner of the three Scottish Veterinary Medical Associations, which was arranged to be held in Glasgow, under the auspices of the West of Scotland Veterinary Medical Association, on Friday, Dec. 22nd, 1882.

The following gentlemen were nominated for membership : Mr. Hepburn, M.R.C.V.S., Coldstream ; Mr. Johnstone, Peebles ; Mr. McArthur, Hawick.

The following gentlemen were nominated as office-bearers for 1883 : President, C. Philips, Esq., V.S., A.V.D., 3rd Dragoon Guards, Piershill ; Vice-presidents, John Storrie, Esq., M.R.C.V.S., East Linton ; Prof. Walley, Dick Veterinary College, Edinburgh ; Prof. Lewis, New Veterinary College, Edinburgh ; Secretary and Treasurer, R. Rutherford, M.R.C.V.S., Edinburgh.

Mr. PHILIPS read a short paper descriptive of a case of Traumatic Laminitis in a pony, induced by the injudicious application of the Charlier shoe. The rectangular groove made in the base of the wall for the reception of the shoe had been too deeply effected, and in addition to this, the shoes, in Mr. Philips' opinion, had been fitted to the groove while much too hot. All four feet were affected. The treatment was removal of shoes, fomentations, poultices, simple diet and aperients, with opium in largish doses.

Mr. THOMPSON, Aspatia, subsequently read the following very able and exhaustive paper on "The Application of Salt to Land as a Preventive of Blood and Parasitic Diseases." He said :—

Mr. Chairman and Gentlemen,—For the last thirteen years I have been closely connected with the working of a Farmers' Supply Association, with a turn-over of from £16,000 to £20,000 per annum, so that I have had exceptionally rare opportunities offered to me for seeing and examining the properties of all kinds of artificial feeding stuffs, as well as the various kinds of natural and artificial manures. Besides this, being the chief agent for selecting samples and submitting them to different chemists for analysis, I have become fairly well acquainted with their chemical composition; and, as these articles have been principally used on the farms in the district over which my practice extends, ample scope has been offered for observing and noting the results of the feeding materials, and the application of the natural and chemical manures to the land, and their effects upon the animals depasturing or feeding thereon, as well as their effects upon the crops.

Before entering into the particulars more immediately within the scope of my paper I will, with your kind permission, briefly relate a few incidents connected with the over-dosing of cattle with decorticated cotton cakes. Probably owing to this article containing such a large percentage of albuminous or nitrogenous principles, I have found that it has a very injurious effect upon young animals under twelve months old. When given in quantities varying from $\frac{1}{2}$ lb. to 1 lb. daily for a fortnight, it causes congestion of the lungs and heart. The first symptoms to be noticed are hurried respiration, with a dry tickling cough; hanging of the head; engorgement of the jugular vein, with watery effusion into the cellular tissue along the under jaw, the lower portions of the neck, and the brisket.

The following incident is instructive and worthy of mention: A large shed was divided into three compartments, and into each compartment six two-year-old heifers were put; the animals in the middle box having the privilege of eating at will out of the mangers on each side which formed a portion of the divisions, and by this circumstance they were enabled to consume a much larger quantity of cake than their share, or the amount intended for them. This went on for about three weeks, when one morning three of the animals in the middle box were found dead, and their three companions very ill. I was telegraphed for, but before my arrival the other three had expired, and the owner, Mr. G. T. Carr, of Silloth Farm, was very much alarmed. I at once proceeded to make *post-mortems* of the animals. On opening into the stomachs, I found them to contain a quantity of matter resembling yellow paint; but, strange to say, on laying open the chest the lower portion of the lungs presented the *red* and *white* marbled consolidated appearance of Pleuro-pneumonia, with watery effusion into the chest and adhesion of the pleuras. From the suddenness of the attack, and its rapidly fatal termination, considered in connection with the facilities for over-feeding resulting from the peculiar position of the mangers, I concluded that the cotton cake was the cause, and ordered the remaining twelve animals to be put on a fresh diet, viz., crushed oats, bran, and a little *salt*, with hay and straw, when no other case occurred. On *four* other separate occasions, and on different farms, I found the following mode of feeding produce *Splenic Apoplexy*: Hay and straw was cut or chaffed, put into a heap, well saturated with cold water, and mixed with a few finger-cut turnips and allowed to lie about twenty-four hours. Indian meal was next put into a large tub with cold water to steep about the same time. The animals were then fed as follows: A portion of the *fermented* hay and turnip was mixed with a little of the steeped Indian meal, to which was added a small quantity of cotton cake and locust-bean meal, and given to the animals night and morning. As already stated, *Splenic Apoplexy* was the result, and a number of animals died suddenly; and on two farms, swine, dogs, cats, and poultry that ate of the flesh and blood also succumbed. On changing the food to plain crushed oats

and bran and a little *salt*, with straw, the progress of the disease was always arrested. The *post-mortems* showed the spleens extensively enlarged, the flesh soft and flabby, with a quantity of brown-coloured effusion in the abdominal cavity, intestines, and bladder.

But I will now refer to matters more immediately connected with my paper.

In the summer of 1862, my friend Mr. Wm. Norman, of Hall Bank, Aspatia, turned *twenty-six* fine promising heifers into some pasture-land, known as GILL GOODEN, which had for ages been notorious as a hot-bed for *Red Water* in cattle, of a very virulent nature. The land was, and is still undrained, on limestone formation, and the herbage is of a very "tart" or acid description (*Tormentil*). The animals had only been on the pasture about three weeks when, on visiting them one morning, the herdsman found one dead. Little notice was taken of this at the moment, but, in the course of the same day, another was observed to be ill, and it died before medical assistance could be procured. Next morning two more were found to be ailing, and before my arrival, death had put an end to their existence. As matters were now beginning to assume a very serious aspect it was evident something must be done, or the whole herd would perish. *Post-mortems* were made, when the spleens were all found to be very much enlarged, and easily broken down; one of them measured thirty inches in length, fourteen inches in breadth, and six inches in thickness, and was of a dark tarry consistency. A quantity of dirty-coloured watery effusion was found in the abdomen, bladder, and intestinal canal. Subsequently two other of the heifers were attacked, and before medical aid could be obtained, both died; and a very remarkable fact was that all the animals that succumbed were ill from two to four hours only.

After making the *post-mortem* examinations and carefully noting the appearances, I pronounced the disease to be *Splenic Apoplexy*, and ordered the remainder of the herd to be removed at once to Mr. Norman's own farm, at Hall Bank, where every one of them received a dose of medicine, consisting of sulphate of magnesia and chloride of sodium, ʒvi each, and pulv. zingib ʒij , given in three pints of thin gruel.

Being a young practitioner at the time, I deemed this the best treatment, but since then experience has led me to modify my opinion, and I consider it was a mistake, as sixteen out of the nineteen took *Red Water*, though all of them recovered. One, however, about twelve hours after the medicine was administered, was attacked with *Splenic Apoplexy*. On being quickly summoned to the place, I found the animal standing in the middle of the farm-yard, its nose nearly touching the ground, its eyes red and suffused, breathing, hard and catching; frothing at the mouth; trembling violently, with muscular twitchings on various parts of the body; standing forward on the hind fetlocks, and pulse scarcely preceptible.

Not having had the opportunity of seeing any of the other cases before they died, all having expired before I reached them, I concluded from the symptoms that death was fast approaching.

My idea at the time was that if the cow would stand bleeding (although against all theory from the symptoms presented), it would, perhaps, check the progress of the disease. I decided promptly, and abstracted one quart of blood, and administered hydrosulphite of soda ʒiv ., with some powdered aromatics. In a short time after the animal seemed to improve, but still continued standing where I first found her. I again decided to take another quart of blood, which was done, and from what was then taught, repeated bleedings tended to increase the fibrinization of the blood; repeated the hydrosulphite, with ginger, gentian, etc., when the animal gradually improved, and before night, or within twelve hours after she commenced, was as *well* as

ever. She was then given bran and crushed oat diet, with a little salt. All the other animals which suffered from Red Water were given two ounces each of hyposulphite of soda night and morning, and did well.

Mr. Norman subsequently gave up this pasture, which was taken by another of my clients, Mr. Jonahn. Holliday, of Plumbland Mill. This gentleman lost four or five cattle every year for about six years, from Red Water. Mr. Holliday also had two mares affected with Red Water on the same land. These were the only cases of Red Water in horses which I ever knew or heard of. I may here state that these animals did not seem to be at all inconvenienced, feeding in their wonted way, with nothing unusual about them except the urine, which was of a dirty brown colour ; each received a dose of purgative medicine, and the diet was changed to bran with a little salt.

With a great deal of persuasion, I induced Mr. Holliday to apply common salt to the land. About thirteen years ago he applied six cwt. per acre, and repeated the dressing a few years afterwards, and since the first application of the salt there has never been a single case of Red Water on the pasture. In another part of my district, Red Water prevailed to a very great extent on low-lying, mossy ground, the herbage of which was of a tart or acid character. The losses on these particular pastures were really very alarming from this malady.

A great friend of mine, Mr. John Twentyman, now of Blumerhasset Farm, resided at Edderside, and a considerable portion of the land which he occupied was of this nature, and, as a consequence, he suffered great loss from Red Water. One day Mr. Twentyman and I were sitting behind a fence, watching the dying struggles of one of his cows, when turning to me he said, "Thompson, what is Red Water?" I replied, "It is a disease of the blood, and due to the want of saline matters in that fluid, whereby the corpuscles, through what is called the endosmotic current, burst, and, with the colouring matters of the blood, make their escape by the kidneys, which causes the dark colour of the urine ; hence the name." He said, "Can the disease not be prevented?" I told him that dressing the land with caustic lime, would, in all probability, be a preventive. He replied that *lime* would make the land grow nothing else but *thistles*. I then said, "A dressing of ground rock salt would be worth the trial ; as it was the agent most used in the treatment of the disease, perhaps a top dressing of five or six cwt. per acre would prevent it." When he at once replied, that it should be done. The land was accordingly dressed with salt every alternate year during Mr. Twentyman's tenancy ; and from the first application about fourteen years ago, till the present time, there has not been a single case of Red Water on the farm.

The lady to whom the estate belongs, now in her eighty-sixth year, has frequently told me, that she could remember her *grandfather* "curing Red Water with a pound of salt, mixed with a little oatmeal and water, put into a stocking and placed on the fire and turned, then crushed up with the rolling-pin, mixed with churned milk, and horned into the animal." After the successful applications of salt to the land by Mr. Twentyman, nearly the whole of the farmers residing in that quarter, who had been suffering losses from the same disease in their cattle, adopted the system, and since that time there has been, on an average, from two to three hundred tons of crushed rock salt per annum applied to the land in the district over which my practice extends, and during the whole of that time *I have not seen one single case of Red Water!*

Hoose in Young Calves.

A malady, caused by small thread worms, called strongles, infesting the bronchial tubes, was, and still is, very prevalent in some parts of Cumberland.

On my first settling down at Aspatria, I found the treatment of such cases very unsatisfactory. Upon investigation, I also noticed that the young animals which suffered the most were generally kept indoors during the early summer months, and then turned out to graze on the fogs and old lays, at the latter end of the summer, and allowed to remain out over night, suffering most in *August* and *September*. The lands on which the malady principally prevailed having been dressed with *silt*, and the animals kept indoors at night, the result has been that, for the past few years, I have rarely seen a case, and when I have met with one, it invariably turned out that the calves *had been left out during the night*. In my own immediate district, I have only seen one attack, and that was on land where no salt had been used, and the young stock had not been housed at nights. This is always most prevalent after wet summers. From my brother practitioners I find that in other parts of the country, Hoose in young calves has been very rife during the past season.

Diarrhœa or Scour in Stirks.

This complaint was also very prevalent, and is still so at the present time in some parts of Cumberland. In the immediate locality of Aspatria it frequently swept away whole herds of young animals from one to two years old, and raged to such an alarming extent that I tried all kinds of treatment for its cure, but without success. One thing I however noticed, that wherever animals *had not been turned out* to grass at the latter part of summer the malady was unknown, while those which were turned into fogs or old laid pastures, more particularly where the soil was strong, low-lying, and wet, invariably took the disease.

Having been so successful in the application of salt in the cases of *Red Water*, etc., and, from the *post-mortems*, finding that this particular Scour in stirks was analogous to Rot in sheep, as I frequently found flukes in the biliary ducts of the liver, I recommended as a preventive a dressing of crushed rock-salt to the land, during the early spring months, and now I am pleased to say the complaint is scarcely ever seen in my district. My opinion is that the young animals get the germs of the malady during the autumn months, commencing first with a short tickling cough, which continues some time before the scouring sets in.

Rheumatism in Cattle.

This complaint was generally known in the district by the name of Cripples, and usually found on mossy and sour pastures. By dressing the land with salt, the affection has entirely left the locality.

Quarter-ill, Quarter-evil, Black-leg, etc.

This disease was very common, and for several years I had a good share of cases, the treatment of which was of no avail. But whether the application of salt to the land, or putting setons in the young animals, at the back end of the year, or the better mode of feeding, in the way of judicious use of corn and cake, with a little salt have been the preventives, I cannot say; but, at all events, I have only met with one case during the past six years, and this was a young bull which had been over-fed.

Rot in Sheep, "Liver-Fluke."

This fearful and destructive malady, which has for years been decimating our ovine flocks, more especially during the last three or four years, and from which, according to the testimony of Mr. Finlay Dun, it was estimated that in the year 1879, in England and Wales alone, no less than three millions

of sheep died, or were sacrificed through Rot. The losses in 1880 and 1881 were equally great; and from the excessive rain-fall, this year will also have its own tale. This, at a rough estimate, cannot have been less than about £5,000,000 per annum loss to the country, and is no doubt the great cause of the extraordinary prices sheep are bringing in the market at the present time.

I cannot boast of extensive experience in this department, and can only recall instances of a few cases, as my practice is not situated in a heavy breeding district. My friend Mr. Norman, when he took the High Close Farm, some twenty-two years ago, found that for a number of years previous to his tenancy, the former occupiers could not keep sheep on the farm on account of this complaint. The land is high-lying (being fully 500 feet above the level of the sea), on limestone formation and of strong texture, and owing to lime-kilns being situated on the farm the land had been frequently and most extensively dressed with lime, yet the disease still prevailed. Mr. Norman commenced to dress the land with salt, and having laid down 200 acres of this land for sheep-grazing purposes, he now not only breeds high-class sheep—Lincolns—upon it, but can keep them until they are so old that they have scarcely a tooth in their heads, and yet they are never affected with Fluke.

In August, 1880, Mr. Twentyman, the gentleman already alluded to, sent sixty-five sheep to graze on an outlying pasture, which he had taken for the season; they remained there till the middle of September, when they were brought to his own farm. A little before Christmas, they were observed to be doing very badly. On the 6th January, 1881, one was killed, and flukes were found in the liver. Mr. Twentyman was surprised at this, as the disease was unknown on his land. The remainder were put under treatment, and all kinds of remedies were tried, but to no purpose. The animals were then housed at nights, and a good supply of cake and corn and one teaspoonful of common salt were given to each sheep every morning, and half pint of lime-water every night; under this treatment fourteen died and fifty recovered. The last death was in May, 1881, and on opening the animal, the gall-bladder and intestines contained a large number of flukes, but very few were found in the biliary ducts of the liver. The fifty sheep that recovered might as well have died, as they failed to make any profitable improvement during the following summer's grazing.

I may mention a remarkable incident in connection with these sheep. Every morning, when they were being turned into the pasture, they rushed into a cart-shed, in which was stored a quantity of crushed salt, and licked the salt with the greatest relish, and it was with difficulty that they could be driven from the salt. With this salt Mr. Twentyman afterwards dressed the lands on which the sheep had been depasturing, as a means of destroying the ova, or host-bearer, of the future fluke. Since that time there has not been another case of Rot on the farm.

In another part of my district, a Mr. Carter, of Dearham, about seven miles west of Aspatria, had a number of sheep affected with this malady. When he tried the salt treatment he went about it in the following manner: he sunk a large tub level with the surface of the ground, into which he put a strong solution of salt and water for the sheep to drink at their leisure, when the animals were seen to go to the tub, and drink the salt and water so regularly that it had to be renewed every day, notwithstanding that there was a stream of clear water running through the field at the same time. This seems very remarkable in two points,—first, that it is a very rare occurrence to see sheep drink at all; and, secondly, it confirms their great liking for salt. However, the principal portion of Mr. Carter's flock recovered under this treatment. Mr. Carter further informs me that he has a quantity of lump rock-salt on various parts of the pasture, and wherever the salt has

been lying fresh beds of clover have sprung up, and that no worm-casts are to be seen.

Louping-ill in Sheep.

I approach this subject with no little amount of diffidence, seeing that it has received so much attention from our most eminent and learned Professors ; and I have very little to say on the matter, as there is still so much diversity of opinion upon it. I can only relate two facts in connection with it which have come under my notice, and there is an old saying, that one ounce of practical fact is worth a pound of theory. Mr. Norman, the same gentleman I have referred to before, has for some years occupied a farm in the county of Surrey, near Aldershot, the land being of a strong character. About three years ago he called to consult me in reference to the loss of a number of sheep on this farm. The symptoms were trembling, loss of locomotive power, jerking of the limbs, falling down ; followed by diarrhœa, and terminating in death, in a period varying from six hours to five or six days.

From the description of the symptoms, I concluded that the disease was Louping-ill, and gave my opinion as such, and recommended the application of five or six cwt. of salt to the acre, as a preventive ; and from his own practical acquaintance of the value, by using this article on his other farms, he at once decided to try it, and the effect was so satisfactory, that I am pleased to say, the disease has entirely disappeared, and he now uses about twenty tons every year on this farm.

Again, in the south of Cumberland, a place called Millom Parks has had an evil repute for generations for Red Water and Dysentery in cattle ; and what is called by the natives "*Stomach Staggers*," in sheep. These maladies prevailed there to an alarming extent, as the average *annual* loss was computed as follows : From Stomach Staggers in sheep—which is Louping-ill under another name—from 100 to 150 died ; and from fifteen to twenty cattle in Red Water ; and in very hot summers, five to ten cows from Dysentery. The present tenant, Mr. Harker, consulted me on two occasions in 1880, as to the application of salt to the land as a preventive, and on my recommendation he applied 120 tons to 300 acres, or eight cwt. per acre ; this was applied in January and March, 1881. He now writes me that in 1881 he had two cows in Red Water and six sheep in Louping-ill. This year—a very bad one for Red Water—he has had five cows affected, four of which died, *but not one single case of Louping-ill*. Three sheep had gone down from other causes, and he has at the present time 250 head of sheep on the Parks, all doing well. This speaks for itself, and needs, I think, no further comment.

I could enumerate numerous other successful cases, where the application of salt to the land has far exceeded the most sanguine expectations ; but I think sufficient has been said in this respect.

Let us see, then, if we can arrive at any plausible reason, why it acts so beneficially ? With the aid of that powerful instrument, the microscope, what startling discoveries have been brought to light, and what a vast field of research has been opened up ! Our Continental friends have come boldly to the front, and their labours have been such that we are now enjoying the great fashionable period of the Germ Theory in medicine, as diseases and their treatment fall in for their share of periodical fashion.

The researches of Pasteur and others prove, to absolute demonstration, that the class of diseases alluded to in my paper are due to, and directly produced by, the action of minute organisms in the blood, and from extensive experiments they have so far become masters of their position, as to prepare from the blood of diseased animals attenuated soups or liquids, and, by the inoculation of healthy subjects with these preparations, the animals are pro-

ected from the virulence of the maladies. This, gentlemen, is of the greatest importance. Old-fashioned and obsolete theories must now go to the winds, and a new method of combating disease reign in its stead. Our colleges will have to re-arrange their curriculum, and teachers turn their attention more to preventive measures than to physic—a more reasonable and scientific plan—and which, I am pleased to note, has already been adopted in this city, and successfully carried out by our worthy secretary, Mr. Rutherford, who, by his method of inoculation, has robbed Pleuro-Pneumonia of its sting.

The best explanation of the manner in which vaccination exerts its protective influence, so as to render the system unassailable to specific diseases, is that of my friend, Mr. A. S. Moffat, of Newcastle. In his admirable papers on “Fungi, and their Work in Nature,” published in the *Newcastle Weekly Chronicle*, he explains the action of vaccine lymph on the animal system to be somewhat analogous to the fairy-ring fungi on old-laid grazing land. He says: “A spore of the fairy-ring fungus finding a resting-place on congenial soil, replete with the peculiar constituents necessary to its development and growth, exists only in such minute quantity in ordinary soil that it is unable to support a second crop; hence the fungus can only extend itself on fresh and unexhausted soil, in an outward direction, gradually increasing in diameter from a few inches to a radius of several feet. The soil of the interior of the circle, being exhausted by the crop it has already borne, remains bare, while the fungus flourishes on fresh pabulum at the periphery. I consider that the foregoing illustration precisely indicates the probable action of vaccine virus on the animal system, eliminating from the constitution some unknown, and difficult to replace, principle necessary to the development and existence of the specific diseases, or by leaving a scanty supply renders its powers for mischief comparatively feeble and innoxious.”

We have authenticated cases, where it is induced under different conditions of management, breaking out at times when the animals are on certain grazing lands, and again when they are stall-fed. When cattle are attacked at pasture, I have found it on tart or sour undrained lands, and my opinion was, that the blood did not receive a sufficient quantity of saline matters necessary for its healthy composition, and the balance between its solid and fluid contents was lost, and its plasticity destroyed. Again, when animals are stall-fed on an excess of amylaceous and saccharine substances, whose elements are bordering on a state of change by steeping in water, conditions which are well known to favour fermentation: for instance, in the malting of barley, the starchy elements are changed into saccharine materials, which, under certain conditions, are readily converted into acetic acid by exposure to the air, so that when brewers' grains or cummings are steeped in water and left exposed to the air they undergo acid reaction. When animals receive, for a length of time, food of a fermentative character, whose action seems to be further increased by the addition of cotton cake, containing a quantity of nitrogen, the blood appears to undergo some peculiar change; thus showing that the quality and nature of the food will exert a great influence in inducing a certain state or condition of the fluids and solids more or less favourable to the development and propagation of these organisms, and that the more disposed the fluids may be to enter into a state of putrefactive fermentation from an exuberance of nitrogenous principles in them, the better fitted will they be to offer a congenial nidus to such organisms. It is strange, that, in this country, we rarely hear of the disease spreading farther than the pasture on which it originates, or beyond the walls of the farm-buildings where the cattle are stall-fed. And may it not be possible, that the immense quantities of manurial refuse from the wine-makers' establishments of the Continent may so furnish the herbage of their

pastures with such an excess of azotized principles, as to induce a state of the fluids of the cattle depasturing on them peculiarly favourable to the development of the particular species of micro-fungus which cause Splenic Fever, Chicken Cholera, and "Charbon," or "Quarter-ill"? Besides the peculiarly suitable condition of the blood and fluids of the animal, for the reproduction and maintenance of these organisms, we must take into consideration the possibility—nay, more, the extreme likelihood of the refuse of the wine-vats, containing as it does, a considerable quantity of nitrogen, becoming when spread over the pastures, a prolific nursery for the breeding of the micromorbs of the diseases. If this be so, then we have in combination all the circumstances and conditions requisite for the ready and frequent recurrence of the maladies in question, in the reproduction of the organisms which cause them in the manure spread over the surface, and in the blood and fluids of the animals in a state ready for their reception and multiplication. I think this may reasonably account for the greater frequency of the diseases in question in the vine-growing countries on the Continent than in colder climates. However, it must be understood, that it merely offers this idea, and that it must be taken for what it is worth. At all events, my practice has always pointed to the food as a cause, both at pasture and in the byre, and from repeated satisfactory results, I have confidence in recommending the use of salt, given along with the food daily or as a dressing to the land. If the disease be due to improper food or the specific germs of organic life taken into the body, I feel certain that in a judicious use of the chloride with the food will prevent the organisms springing into active life, and by dressing the pastures at suitable times with the same article, any germs, ova, or larvæ, that may be lurking in the stems or blades of grass, whether brought to the surface by the earth-worm or otherwise, will be destroyed and the animals protected from these specific diseases. Referring to the "lung-strongle," it perhaps is not generally known that the parasite is "ovoviviparous," bringing forth the young alive after being hatched within the body. Mr. A. S. Moffat, a profound naturalist and great microscopist, says:—"While examining a female strongle taken from the lungs of a diseased sheep, under a single microscope, I was not a little surprised to see the posterior half of the body suddenly split open longitudinally, and about three dozen young—in every particular a precise *fac-simile* of the parent—roll out among the water on the slide in which it was immersed; they all seemed fully matured and ready for their peculiar career." This in my mind readily accounts for the large number of the parasites found so early on in the complaint, in the trachea and bronchial tubes; and as already stated, I find dressing the land with *salt* and housing the young animals at night the best preventive. Turning to "Louping-ill" in sheep, whether this complaint be due to ergotised grasses—a fungoid disease itself—or from small organisms carried by the tick, which it in turn may have contracted from some small germic body that might be concealed in the stems of the plants on the pasture, I cannot say; but the decided and extraordinary results of Mr. Norman's and Mr. Harker's experiments justify further trials of the salt-dressings, for not only will the ova, larvæ, and host-bearers of insect life be annihilated, but the diseased grasses will be destroyed, and fresh succulent herbage of a nutritive character spring forth instead. The same remarks may be made as to dressing the land for the destruction of the ova, pupæ, and the host-bearers of the liver-fluke, for, like my friend Mr. Moffat, I am inclined to think that the pupal stage of the fluke is passed under the external covering of the lower stems of the grasses, near the damp surface of a retentive soil, and carried with the food into the interior of the animal. "Parrot-mouthed," or "shuttle-gobbed" sheep seldom become affected, on account of the malformation of the lower jaw preventing them nipping the herbage so near the

surface. My reason for this view was brought about by watching the movements of a bird, one cold frosty day near Christmas, picking at a bare twig. On securing the twig, I found under the bark a large quantity of larvæ, and if under the bark of a tree is the winter quarters for some of the insect pests, why can't the skin of the stem of grasses act in the same capacity for others?

In conclusion, I think few will deny the valuable use of this natural and extensively diffused commodity, which is as beneficial to the healthy construction and maintenance of the highest forms of life, as it is destructive to the lower organisms. For countless ages the mountains and soils have been robbed of their essential fertilizing and health-giving properties by the rain, evaporated from the tropical seas, and wafted by the winds all over the lands, to find its way back by the rivers into the oceans from whence it came. But may I ask, who returns the solids? Let us, then, follow the dictates of Nature, and return to the lands at least a portion of the matters which have been carried away. And from practical tests, I know of nothing so cheap, so beneficial, and so satisfactory in its results, as chloride of sodium—common salt—and I recommend its application as follows:—The stubble lands should be well dressed before being turned over at the back end of the year, as a preventive of irregular and diseased growths of our cereal and root-crops, such as finger-and-toe and ambury in turnips, potato disease, etc.; for, as a rule, the greatest portion of insect pests that affect these crops deposit their ova or eggs in the autumn, in the most suitable situations, as stubble roots, damp grasses, clover leafage, etc., close to the ground; so that by dressing the land with rough crushed rock-salt before autumn ploughing, the ova of the future insects would be destroyed before they reached the larva or “grub” stage, which they do during the winter months, and cause the greatest amount of injury in this form, by eating into the roots of the different crops in spring. For grazing pastures and meadows, as a preventive of parasitic and blood affections in animals, autumn and spring applications will give the best results; but I have found in a good spring dressing all that could be desired, destroying these little organisms during some of their transformations, and before they are brought into active life by the genial rays of the summer's sun. These systems, if properly carried out—which I have during the past few years, from practical tests, found to exceed my most sanguine expectations—would be much better, and equally as successful in destroying the germs of these specific diseases, and much more satisfactory than subjecting our valuable flocks and herds to poisonous inoculations. Nay, I would go further, in saying that the salt washed from the land by the rains into the rivers, would, I am inclined to think, have a tendency to prevent the fungoid disease which affects the skin of the lordly salmon. Another prolific nursery for insect life is the farm-yard manure heap, which should have a layer of salt spread over it whenever it is dressed up. (Applause).

Professor WALLEY said the Society were much indebted to Mr. Thompson for coming so far to give them such an interesting paper, but the assertions made were of such a sweeping character, and covered so much ground, that it was impossible to take them up at that time, and he suggested that they should defer the discussion of the paper till their next meeting, by which time they would have an opportunity of considering it after publication. He had always impressed upon those connected with the profession, and especially upon his students, the necessity of using large quantities of salt as preventive of the diseases to which Mr. Thompson alluded. He was travelling through the Midland Counties only the other day, when the country was very much flooded, and he told a farmer whom he met that if he threw a little salt on the land after the floods subsided, they might save their sheep.

Mr. POTTIE also thought Mr. Thompson's assertions a little too sweeping.

He held that the Splenic Apoplexy met with in this country was different from that seen on the Continent, which was an infectious disease, and the blood of which was exceedingly poisonous. He had tested the matter by feeding all kinds of animals on the flesh of beasts suffering from this so-called Splenic Apoplexy, and it had even been eaten by human beings without any injurious result.

Professor LEWIS spoke generally in favour of the application of salt to land as a preventive of disease, but doubted if it had all the curative properties assigned it by Mr. Thompson, in dealing with the various diseases enumerated, many of which were of different natures.

Mr. THOMPSON in reply said all the diseases to which he had referred were of a parasitic nature, and he maintained that salt would destroy them.

It was then agreed to adjourn the discussion of the paper till next meeting, the hope being expressed that Mr. Thompson would be able to attend.

Interesting Cases.

Professor WALLEY submitted a specimen of tuberculous disease of the tongue of a two-year-old stirk sent him by Mr. Macgillivray, Banff. The professor said he thought it was the duty of the profession to memorialize the Privy Council to include that disease in the schedule of the contagious diseases. He also mentioned that a cow killed (from Morningside) a week ago, and which had been used for milking purposes, was found to have Tuberculosis of the lungs.

Professor WALLEY also exhibited an interesting specimen of nutmeg liver, which reached the enormous weight of sixty-three pounds; and he stated that the animal was subject to extensive ulceration of the stomach and intestines.

Mr. W. O. WILLIAMS, New Veterinary College, submitted the intestines of a kitten, through a length of which was a string which the animal had swallowed. Previous to its being killed Mr. Williams had extracted a needle and thread from the stomach, which it had also swallowed.

Mr. CAMERON, Berwick-on-Tweed, showed a ruptured stomach with a diseased liver, of a four-year-old filly. The stomach had the additional peculiarity, viz., extensive peeling of the inner surface as if from the action of an erosive. Mr. Cameron could not account for the condition seen; nothing had been given to produce the condition, and to make the case more difficult, another young horse was at the time still suffering, and not expected to recover, the symptoms presented being identical with those shown by the filly.

On the motion of the SECRETARY, a vote of thanks was given to Messrs. Philips and Thompson for their papers, and with a similar compliment to the chairman, the meeting separated.

R. RUTHERFORD, *Secretary*.

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of this Association was held in the County Hotel, Newcastle-upon-Tyne, on the 24th November, 1882,

The President, Mr. H. Hunter, in the chair.

Present :—Messrs. M. Hedley and T. Biggs, Darlington; J. B. Nisbet, Fence Houses; W. Awde, Stockton-on-Tees; J. Fairbairn, Alnwick; W. J. Mulvey, Bishop Auckland; J. E. Peele and G. Farrow, jun., Durham; G. M. Mitchell and D. Dudgeon, Sunderland; W. W. Smart, Gateshead; C. Stephenson; J. H. Wilson, W. G. R. A. Cox, A. Hunter, and the Secretary, Newcastle-on-Tyne.

Visitor :—Mr. Stevenson, Sunderland.

Letters of apology were read for non-attendance from Professor Walley, Messrs. T. Greaves, T. Foreman, and D. M'Gregor.

The minutes of the previous meeting were then read and confirmed.

Mr. M. HEDLEY nominated Mr. George Edward Marsh, of Richmond, as a member of this Association.

Mr. H. HUNTER nominated Mr. J. Fairbairn, of Alnwick, and Mr. Cox, of Newcastle, as members of this Association.

The SECRETARY, in introducing for consideration the list of persons applying for registration under the Veterinary Surgeons Act, 1881, said he had sent circulars of the meeting to all the members of the veterinary profession residing within the district of the North of England Veterinary Medical Association not members of this Association. In doing so he had sent notice to a gentleman who he always thought was a qualified practitioner. In reply he had received the following letter :—

“Veterinary Surgery, Glanton, near Alnwick,
“*Nov. 22nd*, 1882.

“SIR,—I dare say you qualified and duly registered veterinary surgeons will feel much degradation at being obliged to herd with three out of the four applicants for registration belonging to Northumberland, who are, I dare say, men of good moral character (which appears to be the qualification required in your *botched* Act of Parliament) ; but a broken farmer, a blacksmith, and a schoolmaster seem rather strange vocations to claim registration. Those men I have indicated have never been in any way trained for veterinary surgeons, neither practically nor theoretically. Of course Mr. Kitchen, the fourth man I allude to, is a trained man and an excellent practitioner. I am glad my name is not to appear amongst them ; I am content to remain a non-registered veterinary surgeon. Won't N.R.V.S.* look rather nice upon my plate?

“Will you kindly let me know if the mare is still living that Fleming said had Cancer, as I wish to write again to the VETERINARY JOURNAL concerning the case? May I use your name as meeting me at the case?

“Yours truly,

“G. Elphick, Esq., Secretary N.E.V.M.A.,
“Newcastle-on-Tyne.”

“WM. MARSHALL.

He (Secretary) was exceedingly sorry to hurt any one's feelings, especially Mr. Marshall's, and would take care that the accident did not occur again.

Mr. D. DUDGEON said, in considering the list of applicants, he thought no man had a right to apply for registration who had not practised veterinary medicine and surgery continuously, and had not obtained his living by so practising. He had consulted his solicitor, who confirmed his opinion that any one applying for registration must have practised continuously for the past five years, and obtained his living by so doing.

Mr. J. E. PEELE endorsed all that Mr. Dudgeon had said, and thought no man should be allowed to register who had not practised continuously as veterinary surgeon, and that the Privy Council ought to know what sort of men were applying for registration. The following circular was a good illustration of the kind of men that were applying :—

NOTICE OF REMOVAL.

RICHARD HARVEY,
Veterinary Surgeon,

FROM

BURBANK STREET TO 32, WHITBY STREET, WEST HARTLEPOOL.

Over thirty years' extensive experience in the profession, principally in Macclesfield

* Non-Registered Veterinary Surgeon.

and Plymouth, where he was appointed Government inspector for the Plumpton and Ermington division during the Rinderpest, and presented with a silver cup, in 1866, by the dairymen for his successful treatment of their cows.

HORSES CAREFULLY EXAMINED AS TO SOUNDNESS.

Lameness in horses treated without the permanent blemish and torture of the firing iron, which is frequently resorted to by unprincipled practitioners simply for the purpose of making a long bill.

R. H. will take this opportunity of thanking those owners of horses and cattle who have supported him during his residence here. He feels the more grateful, as he came into the neighbourhood a perfect stranger, and had to contend with an established opposition; beyond this an Irishman took the cowardly advantage of being surrounded by satellites to insult him in a most uncalled-for manner. This Irishman is the especial favourite of a small issue of backbiting, scurrilous rubbish, and he was taunted with the contemptible hypercriticism of these illiterate imbeciles.

(Laughter and applause.)

After a lengthy discussion, in which most of the members present took part, it was proposed by Mr. D. DUDGEON, and seconded by Mr. A. HUNTER, that the further consideration of the subject be adjourned for a fortnight. Carried.

Mr. M. HEDLEY proposed, and Mr. BRIGGS seconded, that Mr. Marshall's letter and Mr. Harvey's circular be entered upon the minutes and sent to the veterinary journals for publication. Carried unanimously.

Proposed by Mr. J. E. PEELE, and seconded by Mr. HEDLEY, that Mr. Smart's paper on "*Pleuro-pneumonia contagiosa*" be adjourned to the next quarterly meeting. Carried.

Mr. G. M. MITCHELL then related a very interesting case of dislocation of the hip-joint in a cart horse. He believed it was a very unfrequent occurrence. The subject was an aged draught gelding used for trolley work. When the accident happened the horse was backing into a warehouse, when the calking of the shoe caught the curb and he fell. He fell first on to his hind quarter, and then on to his side. He lay perfectly quiet, but when standing suffered pain and was unable to put the near hind foot to the ground. He was taken home and placed in slings. He (Mr. Mitchell) did not see the horse until three weeks after the accident. He found the limb much shorter and the quarter very much swollen. Could detect a slight grating sound, but could find nothing when examining per rectum, as the parts were very much swollen. Had great difficulty in extending the limb. He ordered the animal to be destroyed, and on making a *post-mortem* examination found the hip dislocated, with laceration of the tendons and ligaments of the joint, with extravasation of blood in the surrounding tissues. No bones fractured. The dislocation had been outwardly.

Mr. D. DUDGEON said he was called in some time ago to see a very valuable mare, which was very lame on the near hind leg and could make no use of it. He thought it was dislocation of the patella. During manipulation the mare became very restive, and fell over on to the lame side. She jumped up all right and continued to keep so.

Several of the members thought it must have been cramp. They had had similar cases, and the treatment generally consisted of the application of hot rugs and the administration of a dose of physic. Several members had seen cases of relaxation of the stifle joint in colts, and found the best treatment was to let them alone and give them time. In obstinate cases had found setons and blisters very beneficial.

With a vote of thanks to the chairman the meeting terminated.

The adjourned meeting to consider the list of applicants applying for registration under the Veterinary Surgeons Act, 1881, was held in the County Hotel, Newcastle-upon-Tyne, on Friday, the 8th December, 1882.

Present.—Mr. H. Hunter, President, in the chair. Messrs. J. E. Peele, H. G. Farrow, jun., Durham; Mr. C. Hunting, South Hetton; Messrs. D. Dudgeon, D. G. M. Mitchell, Sunderland; Mr. J. B. Nisbet, Fence Houses; Mr. T. Foreman, Leadgate; Mr. W. Temple, Chester-le-Street; Mr. Grieve, Blaydon; Messrs. W. W. Smart and W. S. Pringle, Gateshead; Messrs. C. Stephenson, W. G. R. A. Cox, W. Hunter, and the Secretary, Newcastle-upon-Tyne.

Letters of apology were read from Messrs. Awde and Mulvey regretting their inability to attend.

The further discussion of the list of applicants applying for registration under the Veterinary Surgeons Act was introduced by the President, and a very animated discussion ensued, when it was unanimously resolved to oppose all applicants who have not practised veterinary medicine and surgery continuously since August 27th, 1876, and that each individual member of the Association be requested to send in his objections why any of the applicants should not be registered, to the Secretary of the Royal College of Veterinary Surgeons, 10, Red Lion Square, London, W.C., on or before the 18th inst.

GEORGE ELPHICK, *Secretary*.

MEDICAL SOCIETY OF LONDON.

BACILLI.—At the meeting of this Society on December 4th, 1882, Dr. Heneage Gibbes showed a large number of specimens of bacteria, including *Bacillus anthracis*, *Bacillus tuberculosis*, from cattle and from the human subject; the so-called “typhoid bacillus”; *Bacillus anthracis* after cultivation; putrefactive bacilli; bacilli from Septicæmia, Diphtheria, Sheep-pox, purples; bacilli from the Welbeck poisoning case; and the so-called infective micrococci from the spleen of a tuberculous patient. A great part of the evening was spent in the examination of these specimens. Dr. Gibbes drew attention to the two forms of tubercle met with in the human subject, as already defined by Klein: the reticular and non-reticular forms (specimens of bacilli in both were shown). In the former class of cases, bacilli were rarely found; in his own observations, in only one lung out of ten, and then in the smallest numbers, singly or in groups of three or four, in the meshes of the reticulum. In the non-reticular tubercles, on the contrary, bacilli were of almost invariable occurrence in large numbers, and were aggregated into masses, especially to be found in the midst of the caseous centre. He was inclined to think that the latter form indicated a more acute disease than the former. Bovine tubercle was always of the reticular form, with large and numerous giant-cells; the tubercles being aggregated in large masses, which are caseous in many places. In bovine reticulated tubercle, however, bacilli were abundant, but found, not as in the human subject, solely in the reticulum, nor, as in human non-reticular tubercles, in the midst of the caseous matter, but partly in the reticulum, partly around the edge of the caseous region, and partly in the interior of the amœboid and giant-cells. He was inclined to think that the bacillus would prove to be of a different kind to the human one. He had found the bacillus in the liver and spleen, not in the omentum.—Dr. C. Theodore Williams had found *Bacillus tuberculosis* by Dr. Gibbes’s method in the sputa of nearly all cases of advanced Phthisis, but not in all. He thought the exceptions were cases in process of recovery.—Dr. Radcliffe Crocker and Dr. Heron remarked on the various processes for staining the tubercle-bacillus.—Mr. Jabez Hogg remarked on the clinical aspects of the investigation.—Dr. Green said that we had still to learn what were the conditions which enabled the bacillus to produce tubercular lesions.—Dr. Drysdale also made remarks on the question from the point of view of diagnosis.—Dr. Gibbes said he had not yet examined the blood in tubercle.

He pointed out that, in his method, a definite chemical compound was formed by the mixture of rosaniline and aniline, and that the magenta used by Ehrlich was not a definite chemical substance. On the clinical points raised, it was too early yet to say much.

Jurisprudence.

THE IDENTITY OF A PONY.

THIS was a jury case, and was tried at the recent October sitting of the Knighton County Court, before His Honour, Judge Arundel Rogers. The action was brought to recover possession of a black mare pony.

The plaintiff was Edward Harris, farmer, Hendre, Beguildy, and the defendant was Edward Harris, farmer, Nanty, Llanbadarnfynydd.—Mr. Weyman, solicitor, Ludlow, appeared for the plaintiff, and Mr. Woosnam, solicitor, Newtown, represented the defendant.—Mr. Weyman said that the crucial point in the case was the age of the pony, and he suggested that before evidence was given the jury should have the opportunity of inspecting the animal.—Mr. Woosnam questioned whether it would be advisable for the jury to see the pony before the evidence was given.—His Honour asked if the pony was in town, and being informed that it was, gave directions for it to be brought to the door of the court, so that he could see it as well as the jury.—Mr. Weyman detailed the circumstances of the case, and then called his witnesses. Plaintiff is a breeder of ponies, and, according to the custom of the country in which he lived, in May last year he turned the pony in dispute, along with three others, on to a hill in his occupation. This land was near some occupied by defendant, and at that time it was unenclosed. The ponies were seen from time to time by Williams, plaintiff's shepherd, up to October last year, when one of the ponies was missed. Inquiries were made, but nothing was heard of the animal until May in this year, when from some information that reached plaintiff he visited defendant's farm in company with his shepherd. Meeting defendant and his son the four persons went to the place where the pony was confined, and both plaintiff and his shepherd at once identified the animal. Defendant claimed the pony, and refused to part with it. Plaintiff knew it by some marks he made upon its ears before turning it on the hill, and if it was his it would now be rising five years old. In concluding his address to the jury, Mr. Weyman said that the simple question between plaintiff and defendant was the age of the pony.—Mr. Woosnam said he would not accept this statement.—Mr. Weyman said his contention was that the pony was four years old, and he would call a number of witnesses to detail the history of the pony, to detail the marks by which it was known to belong to plaintiff, and he thought that the jury would after that have no doubt as to whom the pony belonged.—Mr. Woosnam said the defendant knew the pony to be his property by its age, by some marks on the tail, by its forehead, and general appearance.—Plaintiff having seen the pony at the door of the Court, said he would swear that it belonged to him—that it was one of the four he turned on to the hill in May last. Before turning it out he cropped the left ear, and on the right he cut a "swallow fork." When he saw the pony at defendant's farm, after examining it, he said, "That is my mark exactly."—In cross-examination, plaintiff said that when he first saw the pony on defendant's farm he said, "That pony is not mine," but he afterwards changed his mind. It was in very poor condition when he saw it and in a dark stable. He made the marks himself. He did not tell defendant that he had not marked the pony for years.—John Williams, plaintiff's shepherd, identified the pony as his master's property, but was

unable to speak as to its age. The pony was turned out some time in May last year, and he saw it two or three times a day until it was missed in October. He did not tell plaintiff that the pony was missing until some time afterwards, being under the impression that it had strayed. But when he could not find it he gave information of the loss to plaintiff. He corroborated the evidence as to the visit to defendant's premises.—William Josephs, farmer, said his land adjoined the hills where plaintiff's ponies were turned upon. He knew the pony very well, having frequently seen it, and identified the one brought to the door of the Court as plaintiff's property. He should think it was a late foal.—The pony was also identified as plaintiff's by a man named Hawkins.—Mr. Tewson, V.S., Leominster, said he had examined the pony produced, and in his opinion it was four years off. He should think it was a late foal.—His Honour: The case has now been brought within a nutshell. You are going to say it is three years old?—Mr. Woosnam: We say it is three years old, and that it is an early foal.—His Honour: Call your veterinary surgeon.—Mr. Whishing, V.S., Newtown, said he had examined the pony in dispute. There could not be any mistake as to its age—it was three years off. He should say it was an early foal, by reason of the fourth tooth being well up.—His Honour said he was only going to ask the jury one question. They had heard the evidence of the veterinary surgeons, and the question was had they any doubt about the age, because if they had he would call in the assistance of an independent man.—One of the jurymen said there was a doubt.—His Honour: Then the pony must remain in the possession of the High Sheriff of the Court until Wednesday, and I will send an experienced person to decide as to the age, and the verdict will be entered accordingly.—His Honour then directed the question of age to be referred to Mr. W. E. Litt, M.R.C.V.S., of Shrewsbury, and that gentleman examined the pony on November the 1st, immediately certifying the age of the pony to be four years off

Army Veterinary Department.

Gazette, January 9th.

Veterinary Surgeon J. Findlay has been placed on temporary half-pay, on account of ill-health.

Obituary.

THE demise is reported of the following members of the profession: P. Rackham, M.R.C.V.S., Lowestoft, who graduated May, 1850; D. C. Murphy, M.R.C.V.S., Cork, who graduated April, 1877; J. Leggett, M.R.C.V.S., Suffolk, who graduated April, 1862; T. P. Richardson, M.R.C.V.S., Clonmel, who graduated May, 1838.—*Vide Register R.C.V.S.*

In October last a well-known name in connection with the micro-organisms of disease disappeared. Dr. Davaine died in Paris, at the age of seventy-four years, and his claim to remembrance will chiefly rest on the very important discovery he made, in recognising the *Bacillus anthracis* as the active agent in the production of Anthrax—a discovery which has indirectly revolutionised our notions with regard to transmissible diseases. But science also owes him much for other services, and especially for some remarkable researches into the nature of Septikæmia, and the anti-virulent properties of a large number of medicinal agents. His treatise on Entozoa is highly esteemed as a manual and work of reference.

The death is announced of Dr. Camarero, Director of the Veterinary School of Leon, Spain; and also of Dr. Fr. Lundberg, Director of the Stockholm Veterinary School.

Correspondence, etc.**"IS PUPILAGE TUITION DESIRABLE?"**

SIR,—Whether I decide to adopt a line of argument advocating pupilage, or I deprecate it altogether, I am fully persuaded there are certain carping individuals who, from a sheer pure love of opposition would disagree with any argument, whichever side was advocated. This knowledge will not deter me from penning a few thoughts that occur to me upon the above subject.

I will endeavour to divest my mind of all prejudice, and take it for granted that both parties are actuated alike by a sincere and honest desire to serve the profession, and would have the student taught such subjects, and in such a manner as will render him a most useful and most eminent man in the calling in which Providence has placed him. It will not be necessary for me to do more than to allude to the fact, that there are great numbers of young men who attend the specified time at college, are examined, and get their diplomas; then go into practice, and when left to themselves become utter failures. This is admitted on all hands and by both parties; it is deplored by both parties; both parties would rejoice equally if some method could be devised by which all students should become clever, useful, and eminent practitioners; but all candid men who have had experience will freely admit that there are, unfortunately, some individuals of certain types of mind and habit, that no kind of education, however long and carefully inculcated, can render clever men. Admitting this, we will dispense with this class, and deal only with that class capable and anxious to be moulded into clever, useful, and eminent men.

We now approach closer, and it is my desire to lead the thoughts of both parties courteously and conciliatorily to attempt a solution of this question, for the common good.

1st. *We are agreed* that a higher scholastic education than formerly has become necessary, and that the test shall be applied fairly and firmly by an independent examining body in a uniform manner. This examination is not to interfere in the slightest degree with the freedom or independence of any of the teaching schools.

2nd. *We are agreed*, however necessary it may be that a man should be well educated to make him a gentleman, such education alone cannot make him a clever veterinary surgeon.

3rd. *We are agreed* that lectures, however well delivered, and however profound, coupled with much study and book-learning, of themselves cannot make him a clever veterinary surgeon.

4th. *We are agreed* that practical tuition is not only desirable, but is actually essential, if the character of our profession and its public usefulness are to be maintained. Those influential and important centres of power, the Veterinary Medical Associations, are all in favour of pupilage tuition.

5th. *We are agreed* that it is, comparatively speaking, a very costly matter to become a veterinary surgeon, especially if the youth is obliged to undergo a term of pupilage for which he pays £100, then add to this his living for one, two, or three years; and then his college expenses. It was very considerably observed by one or two speakers at the meeting of Council, that there are many very promising young men (especially in Scotland), who really could not afford this outlay. I, for one, felt the full force of this argument. I have heard it often before, but we never hear of any of the colleges showing an anxiety to meet the case by reducing their fees. What is the universal maxim? "Get money's worth." Now, I have had a somewhat lengthy experience in my profession, having paid £100 apprenticeship fee, worked from morning until night amongst sick and lame horses for six years, then to college the required time, got my diploma, have mixed freely in my profession ever since, amongst the highest intellects and with others with

many shortcomings. I have been a careful observer, and now after nearly fifty years of professional life, I freely and unhesitatingly state that the period I spent as a pupil has been of priceless value to me throughout my life, and that the £100 paid as an apprenticeship fee was the best-laid-out money I ever spent. I know many others who can endorse all that I have said in their own cases. At the Council meeting, I related a case in point. A gentleman of superior education and abilities, fresh from college, in possession of a diploma, went the other day to see a lame horse; he diagnosed it to be a case of severely sprained fetlock-joint, and treated it for such. I saw the case the day but one after, and found matter exuding between hair and hoof, the foot full of pus. Now, I maintain that a young man who had spent two or three years working from morning until night amongst sick and lame horses could not have made such a glaring blunder. I made bold to say at the Council meeting that "this was one of the results of college teaching, without pupilage." Four teachers who were present instantly cried out as if with one voice, "No, no, no." I replied, "What else can it be? he has had none other." I have no desire to speak disrespectfully or offensively of any teacher, and if I have done so I beg respectfully to withdraw it.

6th. *We are agreed* that a gentleman having had a diploma granted him, and who commences business on his own account, if he frequently makes gross mistakes, diagnoses incorrectly, treats his cases incorrectly, and that his sick and lame cases nearly always fail to recover, he soon gets the character of possessing an inadequate practical knowledge; he stultifies his diploma, his teacher, his college, his profession, and his examiners.

7th. *We are not quite agreed* in what manner he should obtain this inestimable knowledge, which is of supreme importance to him in success in after life; we are arrived at a point which is the nearest approach to an understanding that has ever yet been got. Sir Frederick Fitzwygram at the last Council meeting, very gentlemanly, courteously, and impressively stated, "That it seems to be generally admitted the schools have not got the facilities necessary to teach the student adequately practical knowledge." Another member maintained that we have ample power in our hands to ensure that none but thoroughly proficient practical men be admitted into our profession, by observing a far stricter and severer practical examination. Professor Walley proposed, "That the oral precede the practical examination; if the student fail in the oral he cannot go up for the practical; but if he succeeds in the oral and fails in the practical, he shall not again be examined on any of the oral subjects he may have passed in." Mr. Cartledge made what I think was a very wise suggestion, and which Professor Walley incorporated in his motion, to the effect that "the student failing in his practical examination shall be obliged to go to some veterinary surgeon to gain the knowledge he lacks, and to bring with him when he comes up for examination again, a certificate proving that he has been so employed." This motion after considerable discussion was put to the vote and lost by one vote. There were four members absent, who I know are heart and soul with us in this matter. It is a matter that does not concern us in the least how or where the student gets his practical knowledge, so long as he really has it; this is all we ask for, all we want, all we ever wanted. With such a student, the examiners may examine him as long as they like; the longer the better; the more they see of him the more he is satisfied. I say without fear of contradiction, this degree of practical expertness and knowledge can only be attained by diligent observation, and working from morning until night amongst sick and lame horses for two or three years, in conjunction with the best college teaching.

There is a word that is nearly as useful and important as that "still small voice"—that word is "compromise." I believe that the two parties,

and in fact the whole of our profession, could be brought to see the wisdom and fairness of carrying out Professor Walley's motion with Mr. Cartledge's suggestion added. The two Edinburgh professors gave in their adhesion to it if we would not continue to insist on compulsory pupilage, and I cannot but feel persuaded, if it be advocated in a kindly and conciliatory spirit, that it may become the law of our College, and result in the immense well-being of our profession. At the Council meeting Mr. Peter Taylor proposed that the student should (at the practical examination) be examined by each of the four examiners for a period of not less than a quarter of an hour by each examiner. One member objected, and wished it to be left to the discretion of the examiners; another objected, and made a remark, "What ever matter could you find to occupy a quarter of an hour?" Mr. Taylor manfully replied, "Why, to examine a horse as to soundness alone, if efficiently and thoroughly, should occupy the student half an hour at least." I seconded Mr. Taylor's proposition, and it was carried. One of the speakers in the course of the discussion observed (as we thought in reference to his own personal experience, as our thoughts involuntarily reverted to it) that older practitioners occasionally made blunders as well as young men. This statement of his no one questioned. I sighed then, as I have often done before, for cohesion of sentiment and action, which experience has, alas! shown me is a perfection unattainable here below.—Yours, etc.,

THOMAS GREAVES, F.R.C.V.S.

VETERINARY EXAMINERS.

SIR,—My letter to you, of 10th November, was written from good motives and in the best interests—as they appeared to me—of the profession. If it tends to draw attention to the subject, and helps, even in the slightest degree, to secure a little more justice for Scotch and Irish practitioners, and to increase the number of examiners, either now or at future elections; if it shows that the appointment of recently resigned professors is not unanimously approved of, and reminds gentlemen who act as veterinary advisers of the public, through the medium of agricultural and sporting papers, that their conduct is not commendable, the letter will have fulfilled the purposes for which it was written.

The personal remarks and insinuations of your correspondents, in this month's issue, are a little like my non-election—a very secondary matter—of little importance to myself, or, I dare say, to others. If you will kindly grant space, I will support and explain some of my own statements to which these correspondents apparently take exception.

Professor McFadyean's language regarding the appointment of veterinary surgeons as examiners in chemistry, botany, and physiology, merits, in my opinion, stronger words than I applied to him. For a young professor, at the opening of his college, to stand up and declare that the complete confidence in the Examining Board of both teachers and students has been destroyed by the appointment of veterinary surgeons, and to reiterate this statement, in a special letter to the *Scotsman* newspaper, is going just a little too far. His "diffidence and humility" are of little consequence; but before sending out such a statement to the public, Professor McFadyean should have ascertained the real feeling of teachers and students in the matter. Fortunately, we need not trouble further about it. Professors Williams and Walley, recently at Glasgow, in presence of about forty members of the profession, emphatically stated that they had "perfect confidence" in the new Examining Board; "entire confidence" that the newly-elected examiners would do their duty. And we may therefore rest assured that the young professor's statement, if true at all, is true only as regards himself, and that the appointment of veterinary surgeons has *not* destroyed the complete confidence of teachers and students in the Examining Board.

Professor McFadyean's other statement, or "proposition" as he terms it, I did not even notice. If this "proposition" were applied to professors in the same way as to examiners, I fear there would be a few empty chairs in the lecture room, as well as at the examining board. If it be true "that no one should be appointed an examiner on any subject unless he is eminent in that subject," it is surely equally true that no one should "fill a chair" unless he is "eminent" in his respective department. Which of our veterinary professors was "eminent in his subject" at the date of his appointment? Some of them are not even eminent now, while only a very few have "made their names at all famous." Yet all our professors, so far as I am able to judge, are able, earnest, and successful teachers. So with veterinary surgeons when appointed examiners. They may know their subject sufficiently though they may not be, and may never be, strictly speaking, eminent in their respective subjects, but that they, as a rule, prove good, just, and able examiners cannot be doubted.

Nothing could be further from my thoughts than "sneering at the average student." But when, may I ask, did our students become such adepts in chemistry, botany, and physiology, that none but "eminent men and men who have made their names famous," can or should examine them? By far the greater number of these young gentlemen enter college quite ignorant of these sciences. Is the knowledge instilled into them by their professors, or acquired by themselves, so deep and profound that a veterinary surgeon cannot fathom it? The object and aim of the examinations is not to find out whether the students are thorough chemists, botanists, and physiologists, but to ascertain whether they possess such a knowledge of the sciences in question as a veterinary student should possess—such a knowledge as will justify the examiners in bestowing on them the diploma of the Royal College of Veterinary Surgeons. And for this purpose I hold—and I am simply one of those who hold—that a sensible, intelligent veterinary surgeon, with a fair good knowledge of his subject, will prove as good an examiner as an eminent specialist, who knows nothing personally of the duties, the wants, and requirements of the life on which the students desire to enter. At the same time, I candidly admit, like others, that the presence of eminent highly scientific men at the examinations, and the addition of their names to the diploma, is an advantage—but an advantage which one country should not possess at the expense of another. When "famous" men are examining in England "eminent" men should be examiners for Scotland. If veterinary surgeons are appointed for Scotland, they should also be for England. This is my only contention, the cause of my very consistent sympathy with the two professors—a sympathy for which I have had a poor return. "Had the right men been appointed"—that is, had Professors Turner and Crum-Brown been now the colleagues of Professors Burdon-Sanderson and Voelcker, or had, along with Mr. Taylor and Vaughan for Scotland, two veterinary surgeons (Scotch preferred, myself not included) been now examiners for England, paragraph iv. of my letter would never have been written.

Professor McFadyean's researches into the Transactions of the Highland Society might have led him to the more charitable conclusion that I have had fair opportunities of knowing what veterinary examiners and students really are. I too "have known examiners of a breadth of professional and general education to which Mr. C. has not a tittle of a claim express their astonishment at the professional knowledge acquired by 'good' veterinary students within so short a period." And I also have heard such gentlemen puzzling the students and knocking them about in a way that a veterinary surgeon would never think of doing, and speaking of the indifferent students in language the reverse of complimentary. As to the students, I mean my words to be taken literally. Without any "sneering," but the very reverse feeling, I say that

each year among those who go up for examination there are "a few (say five) bright, clever young fellows" who pass an exceedingly good, an exceptionally good examination; that there are "a few (say ten) earnest, hard-working students" who pass easily and well; that there are a few (say five) so careless or inefficient that they are generally rejected; and that there are some (say ten) who are the bane of the examiners—the men to decide whose fate the presence of two examiners at each table is almost absolutely necessary. These men are good in some subjects, indifferent in others; some may pass, and others be relegated to their studies. While heartily concurring, therefore, in all the praise that can be given to the first fifteen men, I hold that "on the others there is room for improvement;" and such being the case, I fail to see why veterinary surgeons should not examine them.

As regards such subjects as chemistry, there are certainly exceptional men occasionally found among the students. These men have generally studied the subject before entering college, or it becomes with them a favourite study, and they give special attention to it. The late Professor Strangeways, if I remember aright, was one of this class; the first-prizeman in chemistry of my own year was another—he scarcely ever attended a lecture. I have heard him "grind" the class almost as well as our professor himself; he was a good practical chemist before entering as a veterinary student. I remember, too, the names of half-a-dozen graduates of the Highland Society "head and shoulders" above their fellows in physiology. These men are only examples of many others. They are the very men who, after having a few years' practice and a few years' experience as veterinary surgeons, will prove, in my opinion, as good examiners as can possibly be found. If Prof. McFadyean wishes a list from which to select examiners, he cannot do better than turn to that of the prizemen and better-class graduates of his own college and those of the other veterinary colleges. He will there find the names of not a few veterinary surgeons—certainly not "eminent" nor "famous," men who would never think of "posing" as chemists, botanists, physiologists, anatomists, or pathologists, yet men upon whose election "comment would *not* be superfluous," whose attitude would *not* be "beneath contempt"—men who, if appointed for five years, would prove fully qualified and able examiners of veterinary students in any subject whatever.

That a good many students shun dissection, and learn their anatomy from books, cannot be denied; and my remark to you, sir, was only made in the hope that by your examinations you might check a practice which is hurtful to the best interests of the students themselves. "Paper chemistry and physiology" I did not touch on. Though not commendable, they are not so hurtful, and a little more excusable, than "book anatomy." Prof. McFadyean said something about the "walls of my *Alma Mater*" and myself when I left them a good many years ago. Well, it is good sometimes to look back twenty or thirty years. As some one had to tell Professor McFadyean the other day, microscopical demonstrations were then almost daily given, and practical instruction in the use of the instrument was within our reach, though I fear some of us did not avail ourselves sufficiently of our opportunities. Let the students now be wiser. Six or eight distinct "subjects" lying on their backs or sides in the old dissecting-room, and from three to six students in a forenoon busy at each, was a sight, however, more commonly seen in those days, I venture to say, than now. The students of those days, with fewer advantages, compare very favourably with those of the present time in real, practical knowledge of anatomy. Thirty years ago, too, John Barlow sat in the chair, afterwards John Gamgee, Professors McCall and Strangeways; surely as good men as now.

As regards the horse and cattle practice examinations your correspondents appear to have failed clearly to understand my meaning. Cannot they

understand that I would rather indicate than enter on the subject? If Professor McFadyean and "A Country Practitioner" have carefully compared English practitioners with their Scotch brethren; if they have carefully noted respectively the cases and the treatment of each, the drugs and their applications, the examinations and the certificates; if they have seen the men on their rounds and at their daily work; and if they agree that "nationality" is nothing, that the system of practice pursued in England differs in no essential particular from that followed in Scotland, and that it is fair and right that "four English practitioners should be sole examiners in horse and cattle practice for the United Kingdom," then they will simply have come to a different conclusion to that at which I have arrived, and we can agree to differ. But after such a comparison and experience—I think that even Mr. McFadyean and "A Country Practitioner" will admit "that two other practical examiners—one Scotch and one Irish—should be added to the horse and cattle practice table respectively; making, with the two English gentlemen already appointed, four examiners on each table." English practitioners have at present four representatives at the practice tables, Scotch and Irish practitioners have not one. The duties, too, of the examiners, I beg to remind Professor McFadyean are not to ascertain whether the students can correctly rehearse and will faithfully follow the "prelections of the colleges," whether delivered in the "native dialect" or not, but to find out whether the students are fit to be licensed as veterinary surgeons—fit to begin practice wherever their lot may be cast; and I hold that for this purpose, and in justice to the students themselves, a mixed board—a board composed of a few of the best English, Scotch and Irish practitioners—is to be preferred. By simply transposing, but not altering, Professor McFadyean's words, we find he says that "it is undeniable that Scotch practitioners can be found of equal eminence with those from the sister country, it was a most unreasonable slight to the former that they were passed over when a Scotch Examining Board was being appointed." Wherein differs his words from mine, when I say in my letter to you, "that the council, by appointing such (English) gentlemen only, have done great injustice to Scotland and Ireland"? "A few of the very best men" surely means the men of greatest merit and ability. My remarks apply only to such.

In taking leave of the subject, and thanking you for your kindness, I have simply to give the personal insinuations of Prof. McFadyean and "A Country Practitioner" a broad, flat, emphatic denial. (I.) Justice to Scotland and Ireland; (II.) no recent ex-professors, and (III.) no persistent veterinary editors as examiners; (IV.) justice to Scotland at the chemistry and physiology tables, and to veterinary surgeons as examiners, and (V.) justice to Scotch and Irish practitioners and students in the horse and cattle appointments—the most important of all—these were my mottoes and motives, as any impartial reader may ascertain by simply reading the paragraphs of my letter as numbered. "My nomination for the Scotch Board" was, and is, a very secondary matter—a matter which I stated was "of little importance." My letter to you, sir, was not due to my non-election; yet here is a Scotch professor ready to take up the latter as his clue, to make personal remarks and comparisons, and bring all the force of clever, sarcastic language to discredit some of my statements, and directly and indirectly discredit objects which, in my opinion, it is his duty to promote. Here, too, is "A Country Practitioner" making coarse personal remarks and gross misrepresentations, and yet adding neither name, date, or place to his letter.

But for your readers, and in support and explanation of my own remarks, I would not have noticed such letters. The personal remarks of your correspondents I shall not follow, nor reciprocate. I leave your readers to form their own opinions on the subject.—I am, Sir, yours very truly, C. CUNNINGHAM.

Slateford, 15th January, 1883.

THE FLESH OF DISEASED ANIMALS AS FOOD.

SIR,—A letter from “A Country Doctor” in to-day’s *Lancet* describes a case in which the flesh of a cow that had been slaughtered *while suffering from Anthrax or Splenic Apoplexy* was sent by the owner to the London market and realised £18. The said owner *was assured by the veterinary surgeon that the flesh would be innocuous*. Undoubtedly, division of opinion exists as to the fitness of certain flesh as human food, *e.g.*, when an animal has been slaughtered when suffering from Pleuro-pneumonia, Tuberculosis, Parturient Apoplexy, in any stage of lactation or pyrexia. But surely, sir, no member of the profession would publicly state that *anthracoid flesh* was fit for food—even for a dog—*knowing* the terrible nature of the disease. In the case quoted above, a dog died from “licking up some of the blood ;” two colts “sniffed the blood while crossing the yard where she had been killed ; they died very quickly.” “A man who cut the animal’s throat, leaving some blood on his arm and shirt-sleeve, died in a few days of Erysipelas and blood-poisoning ;” this “blood-poisoning” was probably Anthrax.

Is it not time, and would not the coming Congress be a good opportunity, to freely discuss the question from a scientific, statistical, and practical point of view, as to what flesh is, or is not, fit for human food, where there has been *the least departure from health, and the animal slaughtered in consequence* ? Putting aside all *sentiment*, there must be a *fact* respecting the question entirely beyond *mere opinion*. This, if known, and universally supported by the *body* of the profession, would remove individual difficulty, and put an end to conflicting forensic evidence.

I remain, sir, yours truly,

Dartford, 13th January, 1883.

WM. ALSTON EDGAR.

HILL’S “BOVINE MEDICINE AND SURGERY.”

SIR,—My reply to Mr. Macgillivray’s last letter will be brief, and that chiefly on a point which would appear to be a question of truth or falsehood between us. Mr. Macgillivray in his first communication observed, “One of the chief attractions of this work, *as advertised* (he omits to add since the subscription list closed), was, in my eyes, that it was accompanied ‘with an Appendix on the Practical Inspection of Meat,’ copiously illustrated with ‘woodcuts and coloured plates.’” In the remarks just quoted, Mr. Macgillivray was leading, or attempting to do so, the readers of his letter to suppose that he had purchased the work with the above expectation.

Now for the *exposé*, the meaning of which I will not query his knowledge of. In his last letter Mr. Macgillivray says, “My cheque in payment of the book was forwarded 25th August, 1881,” at which date the advertisement ran as follows :—“The Principles and Practice of Bovine Medicine and Surgery, containing upwards of 1,000 pages of letterpress, with numerous woodcuts, twelve coloured plates, and an appendix on the Practical Inspection of Meat.”

Not a word is mentioned about a copiously illustrated appendix in that notice, which continued month after month unaltered ; whilst, instead of twelve coloured plates, the work contains *nineteen*, which incurred a further cost of nearly a hundred pounds, and gave Mr. Macgillivray *more than he was led to expect* when he sent his cheque.

I will leave your readers now to decide as to which of us has written the truth.

My remarks on Dr. Crisp’s article were perfectly justifiable, inasmuch as that gentleman had cast an undeserved and unwarranted reflection on our profession. It will be within the recollection of the readers of that article that Dr. Crisp stated : “It is a remarkable fact that not one of our writers on veterinary medicine that I am acquainted with has mentioned Rickets in the lower animals. Youatt, Gamgee, Williams, and Fleming have all passed

it unnoticed." In what Mr. Macgillivray terms my critique, I gave the names of lecturers and authors in our profession who *had* discussed Rachitis, especially one whom Dr. Crisp named as not having done so, viz., Professor Williams, in whose work the subject is well dealt with and *illustrated*. I consider it, as I am sure every right-minded man will, only fair that such a statement as that made by Dr. Crisp should not go forth uncontradicted, and in Mr. Macgillivray's allusion to this matter I fail to see any connection with the one now at issue.

His other would-be sarcasms are, I consider, beneath my notice, excepting that relating to the delay in the publication of my work, which delay I will take this opportunity to state was entirely due to the tedious execution of the illustrations (especially the coloured ones), a delay which caused me much annoyance, many journeys to London, and some amount of unpleasantness with the firm who produced them. I in no way contributed to that delay and much regret that the patience of my subscribers should have been so taxed, while I appreciate the forbearance of those who have made no complaint, though they have doubtless lost a trifle of interest on their "bit o' siller," yet withal do not sneer.

If my efforts in this literary production have been a failure—so be it. Thus far, however, I have no reason to be otherwise than flattered by its reception.

The letter penned by a *vet. in embryo* (judging from the signature), will receive the treatment all communications from individuals who conceal their names do at my hands, viz., remain unanswered.

Yours truly,

Wolverhampton, 10th *January*, 1883.

J. WOODROFFE HILL.

THE REGISTRATION OF EXISTING PRACTITIONERS.

DEAR SIR,—I can fully endorse the statements made in a letter appearing in the *Veterinarian* for December last, with regard to the registration of existing practitioners. If we are to be judged by *members* who, instead of adorning the profession, are a disgrace to it, and who look on some of us who have a regard for our character and reputation with a jealous eye, I fear many will get "scratched." I have in my mind's eye now two *members* who both reside within seven miles of me—one is often content to sleep in an out-house on a farm or the stable of a village inn; the other has not possessed a horse to visit his patients for the last ten years; and both have spent a fortune at the police-court in fines for drunkenness, etc. And yet such are to have a voice whether an existing practitioner who strives to maintain a reputable position in society is a fit and proper person for registration! Having been cradled in the profession, studied some of the best veterinary authors during youth (with the intention of entering upon collegiate duties at Camden Town, but was prevented through family circumstances over which I had no control), spent five years as assistant to veterinary surgeons, commenced taking the *Veterinarian* in 1872 and latterly the VETERINARY JOURNAL, and now been over fourteen years in my present practice, I do not like to settle down with the epithet of impostor, quack, or charlatan. As your correspondent suggested, if any additional reference is needed to what has been given, surely clerical, medical, or magisterial evidence might be obtained; but I fear, if left to the tender mercies of such *members* as I have represented above, I am only one of many who possibly may be rejected.

I remain, dear sir, yours, etc.,

"JUSTITIA."

PREMATURE PROFESSORS.

SIR,—I have read the introductory address delivered before the students of the Clyde Street Veterinary School, by the young man who designates

himself, or is by some others designated, "Professor" McFadyean, and I do not know whether astonishment, disgust, or amusement possess me most. Surely if anything is more than another calculated to bring introductory addresses into ridicule, and the title of "Professor" into contempt, it would be this very young man, this "Professor," foaming with rage in his ludicrous attempt to abuse the Royal College of Veterinary Surgeons and the Examining Board, and defame the entire body of the profession, of which he is a juvenile, and—so far as his abilities and work are concerned—an unknown, or at most, an obscure individual.

Not only are some of his statements the opposite of correct, but they are calculated to mislead. If I am not mistaken, he is the young man who tried to create a disturbance between the profession and the Highland Society of Scotland, when the Veterinary Surgeons Bill was in Parliament; and the object of his address, and also that of a letter which he has recently published in the *Scotsman*, is evidently intended to damage, to the utmost in his power, the veterinary profession, and to sow strife and discord in its ranks. "'Tis an evil bird that befouls its own nest" is an old and a true saying, and this so-styled "Professor" bids fair—if he goes on as he has commenced—to be one of the foulest birds we have ever had in the nest professional. If he occupied any position in public or professional estimation, his ill-bred impertinences would merit serious castigation; as it is, however, he is all but unworthy of notice, and his remarks are as contemptible as their motives are malicious. I am informed that he is studying human medicine; if so, this may account for his wrath that we are resolved to dispense with medical men, who know nothing of our branch of medicine and surgery, at the examinations. I fancy that, so far as he is cared for, or is likely to be of any value to us, he had better go over to human medicine altogether; he can well be spared, as his career as a Professor (if the "address" is a criterion) does not promise well, and he will only be missed in a certain sense. What I wonder at is that such pernicious nonsense as he is reported to have blurted out before a class of young men aspiring to enter the profession (which he was doing his utmost to defame), should have been allowed by the Principal of the school. I fancy in my student days such venomous trash would not have been permitted to occupy the time of the students, or if he had persisted in supplying it he would have been hissed and pelted from the room. I fear there is not much regard for the students' proper training, when such morbid harangues are allowed to be delivered before them. I would be sorry indeed to send my sons to a school where their estimate of their profession would be derived from such a Professor—that is, if his lectures are couched in the style of his address.

Fancy the gross impertinence of this young man, the imprint of whose breeches is scarcely yet effaced from the students' bench, in stating that *he* (as he can only speak for *himself*) has lost confidence in the Examining Board, because it is composed of veterinary surgeons!

In his intense desire to depreciate the board, he took very good care not to tell the students that Professor Turner, the late examiner in physiology in Scotland, is unknown as a physiologist, and is a human anatomist; that the examiner in Veterinary Materia Medica in Scotland, in all probability never prescribed a dose of medicine for an animal in his life, or studied the action of medicine on animals—being a human physician.

The "Professor" was careful to keep this information in the background, as it would not have suited his purpose to allude to it. Did the "Professor," or any one else, ever hear the name of Professor Turner mentioned as eminent in physiology, or that of Dr. Dunsmure in relation to materia medica and therapeutics? Neither of these examiners were specialists in the subjects on which they examined, neither did they even teach these sub-

jects ; one, indeed, was a practitioner in private practice. So much for the nonsense of the young "Professor," upon which he tries to find a peg on which to hang a string of abuse in regard to the examiners. I believe the "Professor" teaches, or professes to teach, anatomy ; and, if all I hear is true, the students at the Clyde Street School know less of this important subject than they did twenty or thirty years ago. This can scarcely be wondered at, if the address is to be taken as a proof of the kind of teaching they receive. At any rate, I think every one who reads the address will agree with me, that instead of wasting the students' valuable time, and poisoning their minds with a deleterious dose of professional politics (which are never in season with students), a practical demonstration in anatomy was what they stood most in need of, and what they paid their money to obtain. Some one should look after the "Professor," and teach him what to teach, and how to teach, if he allows his attractive name to honour such a degraded profession, and he condescends to remain a member of such an unworthy and corrupt institution as the Royal College of Veterinary Surgeons. If in time he only equals some of the men who are members of that corporation ; still more, if he only comes near his predecessor in the anatomy chair of thirty years ago, he will have to change his course of steering very considerably, and not only learn manners, but also his profession.

The name of Professor Dick is not one to conjure with, and the "Professor" should be warned not to make too much of it in attempting to raise the reputation of the Clyde Street School to what it once was. Professor Dick has not left his equal in Scotland for some things, and the glory of his school vanished with his death, never to return—if the "Professor" is to be taken as a typical successor. But Professor Dick belonged to a period in veterinary history which has gone bye, and it will not benefit any school, nor yet the profession, to attach itself to the coat-tails of any individual, or rely merely on a past reputation. Professor Dick was a good man in his day and generation, but the young "Professor" will not shine well if he depends on the light he may try to borrow from this source ; though he might do worse than follow, to some extent, in the footsteps of the *real* Professor.

Perhaps, after all, the fault is not so much in "Professor" McFadyean, as in the system which has constituted him a professor prematurely—a kind of tuitional anomaly. Owing to circumstances peculiar to veterinary schools in this country, it generally happens that newly-graduated students are selected to teach, probably not so much from any mental endowments they may possess, as from their constitutional ability to subsist on a meagre diet ; and as the staff of the schools must form an imposing *ensemble* of "Professors," as a guarantee of complete efficiency to the public, these youngsters—or at least some of them—are dubbed "professors" at once, and installed in chairs, which at other colleges it requires years of energy, competition, and well-trying ability to obtain. To their great credit, some of these premature veterinary professors, endowed with prudence and modesty, have the good sense to keep quiet, to learn, and to do all that lies in their power to promote the well-being and good name of their school and profession. It is only too evident, however, that others do not so act ; and that, manifesting all the discreditable attributes of badly-trained young men, they bring discredit and ridicule upon, not only the premature professors, but veterinary schools and teaching. If there is anything more objectionable than another, it is a very young professor expressing himself *ex cathedrâ* on subjects which he does not understand, with which he has no right to meddle or to be heard, and squandering away the hours of students in talking damaging nonsense on matters which con-

cern them not. Such young men must be a nuisance whenever and wherever they appear; but it is the principals of the schools who should be held responsible for their appearance. It is earnestly to be hoped that these lads will be kept more in hand, and that if their vanity and presumption prompt them to deliver addresses to students, that these addresses will be overhauled by some one who knows what they should be.

With regard to veterinary surgeons as examiners, those who should know best are of opinion that in every respect they are preferable to medical men who have not made the hygiene, physiology, therapeutics, and pathology of the domestic animals a special study. It is scarcely less than a farce to appoint medical men to examine veterinary students, when they do not know what their requirements are; and the premature professor is so young in the profession, and has had so little experience, that anything he may have to say in favour of medical men, to the disparagement of veterinary surgeons, must count for less than nothing.

As to the nationality of the examiners, this cannot be of any importance, when we reflect that Scottish students in Scotch schools are, perhaps, always in the minority, the majority being composed of English and Irish students. Indeed, the nationality question must provoke a smile, when we know that of the principals of the three Scotch schools, one is an Englishman who studied at the London school, and another is a Welshman. What with principals and students, there is no basis whatever for a national grievance. Besides, the Council of the Royal College is composed of representatives from the three kingdoms, and they elect the examiners.

Yours, etc., "ASMODEUS."

(Three members of the examining board are Scotchmen, and the present President of the R.C.V.S. is also a Scot, and was trained in Dick's School.)

A CORRECTION.

WE regret that, through an error in the Register of Veterinary Surgeons, it was stated that the late Mr. Ashe, of Cork, an obituary notice of whom appeared in the Journal for last month, graduated in 1874. We are informed that he graduated in 1849.

A number of communications are unavoidably held over until next month.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from J. W. H. Ashe, Cork; A. E. Queripel, A.V.D., Punjab; J. Nunn, A.V.D., Punjab; W. A. Edgar, Dartford; T. Greaves, Manchester; J. W. Hill, Wolverhampton; J. B. Wolstenholme, Manchester; W. E. Litt, Shrewsbury; J. Penberthy, London; "Justitia"; C. Cunningham, Slateford; T. Hopkin, Manchester; "Asmodeus"; T. Chalwin, Adelaide; J. J. Sperring, Dublin; A. W. Hill, London.

BOOKS AND PAMPHLETS: *F. Blazekovic*, Die Krankheiten des Herzens unserer Hausthiere; *B. G. Wilder* and *S. H. Gaze*, Anatomical Technology as applied to the Domestic Cat; *E. Vogel*, Die Auf Thiere und Thierseuchen; *G. Ercolani*, De l'Adaptation des Espèces au Milieu Ambiant.

JOURNALS, etc.—*Australasian Veterinary Journal*; *Annales de Méd. Vétérinaire*; *Lancet*; *Archiv für Wissenschaftliche und Practische Thierheilkunde*; *American Veterinary Review*; *Recueil de Méd. Vétérinaire*; *L'Echo Vétérinaire*; *Proceedings of the Medical Society of the County of Kings*; *Edinburgh Med. Journal*; *British Medical Journal*; *Revue Vétérinaire*; *Journal de Méd. Vétérinaire*; *Archives Vétérinaire*; *Recueil d'Ophthalmologie*; *Repertorium der Thierheilkunde*; *La Presse Vétérinaire*; *Journal of Comparative Medicine and Surgery*; *La Clinica Veterinaria*; *Der Thierarzt*; *Wochenschrift für Thierheilkunde und Viehzucht*; *Medical Press and Circular*; *Breeder's Gazette*; *Live Stock Journal*; *Chicago Live Stock Journal*; *Field*.

NEWSPAPERS.—*Birmingham Gazette*; *South Eastern Gazette*; *Norwich Mercury*; *Leeds Mercury*; *Life*.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

MARCH, 1883.

ACTINOMYKOSIS: A NEW INFECTIOUS DISEASE OF ANIMALS AND MANKIND.

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR.

(Continued from p. 81.)

Actinomykosis of the Œsophagus.

A most interesting instance of the disease in the œsophagus is described by Siedamgrotzky, who obtained the specimen fresh, and carefully examined it. The mucous membrane of the tube was covered with hundreds of small, flattened, sub-epithelial nodules, from one to four millimetres in diameter, mostly collected in groups, in each of which, in a bright light, a small yellow centre could be distinguished by the naked eye. In some places the small tumours had become confluent to form irregular, compact masses, about twenty millimetres long, of a pale-red tint, and in which the yellowish-red centres or kernels were visible. Some of the tumours stood out from the mucous membrane like pins' heads. In the middle of the œsophagus was a similarly-shaped polypus, from eight to nine millimetres in diameter, four millimetres high, and four millimetres in diameter at its base on the mucous membrane. The tissue of these masses was yellowish-red, soft, and filled with numbers of nodules containing the *Actinomyces*.*

* An analogous instance, but the real nature of which was not suspected, is given in the *Edinburgh Veterinary Review* (vol. iv., p. 235), under the heading, "Degeneration of the Mucous Membrane of the Œsophagus." The membrane was studded with what were described as warty growths, some of them of great size.

Actinomykosis of the Stomach and Intestinal Canal.

Two specimens of the disease in the stomach and intestines are described by Johne. In the second compartment of the stomach of an ox was found a round, flat tumour, the size of a fist, attached to its surface, and covered by normal mucous membrane. Its interior was soft, more or less spongy, and contained numerous small masses of nodules, consisting of conglomerations of the *Actinomyces*.

Bollinger alludes to what was described as a tuberculous ulcer in the rumen of a cow, but which he is of opinion was a case of Actinomykosis.

Perroncito has described a sarcoma of the intestines and stomach, in which the fungus was found.

Actinomykosis of the Udder.

Johne has described two instances, and Ponfick one, of the disease occurring in the udder. Two were in swine, and one was due to experimental inoculation. In Johne's cases—accidental and experimental—the disease appeared as a diffused fibroma. In the accidental case, the udder was enormously enlarged, and weighed nearly sixteen pounds; it was hard, indefinite in mass, and on section appeared to be, from its white colour, a cellular fibro-sarcomatous growth, in which the gland structure was limited to a few small masses in the midst of the new formation. The teats were partly normal, partly effaced by retraction into the tumour, and partly gangrenous and fissured. In the mass of the tumour were found a small number of well-defined nodules, from the size of a hazel-nut to that of a fist. The smallest of these contained a greyish-yellow or reddish mass, resembling brain tissue, with yellowish coloured nuclei interspersed throughout. In the centre of the largest the matter appeared to be undergoing caseous degeneration, and in some of the interspaces was a greenish-yellow, thick, puriform fluid. The milk cistern was markedly altered. In places it was smaller and larger, and near the centre of the tumour it was flask or flagon-shaped, its outline being sharply defined, and the dilatations being filled with the typical spongy tumour mass.

In the case produced by inoculation, reference to which will be made hereafter, the most interesting fact is that the *Actinomyces* was introduced into the gland by its milk duct, and that the inflammation set up in the mucous membrane, which was at first adventitious, became interstitial—affecting the intra-acinous connective tissue, and producing intensive development of the glandular parenchyma, with, finally, extreme hypertrophy of all the connective tissue.

Ponfick had sent to him the udder of a sow which had been affected with Erysipelas (*Rothlauf*), but there was such an unusual disappearance of the proper gland tissue, and altogether the lesions were so different to those brought about by that malady, that the existence of another disease was suspected.

In the middle of the largest half of a round swelling involving the entire mass of the mamma, and which was double the size of a child's head, were noticed a great number of soft, round nodules, fixed here and there in the lardaceous-looking substance of the tumour. This felt so peculiarly elastic, and was at the same time so compact, that on pressure on the surface it seemed as if the fluctuation was due to some deep-seated gelatinous fluid. This was enclosed in a white, dense, inelastic tissue, on the inner surface of which were some detached portions of the gland proper, and which formed, with the thickened and indurated cutis, a continuous kind of rind. The entire mass gave the impression that the parts had been affected with diffuse inflammation, which had produced extreme induration of the skin and the subcutaneous and gland tissues. But what was peculiar, was the presence in the homogeneous mass of a considerable number—more than a dozen—of sharply-defined nodules, from the size of a cherry-stone to that of a walnut, imbedded in a spongy, flesh-like gelatinous matrix, and studded with yellowish spots, islets, and small cavities. These cavities contained a greyish-yellow fluid, in which a number of white bodies, the size of millet-seed, were suspended.

Microscopically, no trace of the gland structure was found in the dense connective tissue. The yellow, flesh-like substance of the solid portion had a general resemblance to polymorphous round-cell tissue, with very few vessels, while lying in groups, in

concentric strata of increasing dimensions, were small white nodules. Throughout these, and in the fluid portion, were found immense numbers of the *Actinomyces*, many of them surrounded by a calcareous envelope. These felt like particles of sand.

Actinomykosis of the Lungs.

Actinomykosis of the lung of cattle had not been observed until Professor Pflug, Veterinary Professor in the University of Giessen, published an instance in 1882. Indeed, there were only four cases of lung Actinomykosis recorded previous to this—two occurring in the human species, and two produced in calves by experimental inoculation—all recorded by Ponfick.

Pflug's case is very interesting, and is as follows :—

A cow about five years old, appeared to be dull, did not eat as usual, and frequently coughed. For two days before the arrival of the veterinary surgeon, the appetite had almost gone, and the respirations and cough were so frequent that the owner thought the animal was suffering from inflammation of the lungs. The veterinary surgeon found the cow apathetic, nostrils widely dilated, and staggering about in the stall; the dyspnœa was great, and the breathing most laborious. Percussion on each side of the chest yielded a dull sound, while auscultation detected an indefinite respiratory murmur, a bronchial rattle, and increased expiration. The pulse was proportionately strong, and the internal temperature 40·9° Cent. On a second visit all the symptoms were increased, and as they bore a strong resemblance to those of Contagious Pleuro-pneumonia—then prevalent in the district—he had the animal slaughtered. On examination, only the lungs were found to be diseased, being studded with miliary tubercles, and as this condition was very unusual, the parts were forwarded to Pflug.

The lungs were fully distended with air, and firm, but elastic; for the most part they were anæmic and generally white, only small portions being hyperæmic. The pleura was normal, but there appeared throughout very many miliary tubercles the size of a pin's head, which formed so many slight prominences on the membrane, and caused it to feel granular. The lungs did not sink in water, even when incised. The cut surface had a fine

porous, or pumice-stone appearance; and no serum, but only a small quantity of blood, could be squeezed from it on pressure. The inter-alveolar and interlobular lung tissue appeared to be slightly thickened and porous, and this, together with the emphysematous condition of the alveoli, gave the lung its strongly-elastic consistency. On the cut surface were seen numberless minute tubercles, very granular, in size about that of a millet-seed, or a little larger. In the hyperæmic patches the tubercles were very conspicuous. In none of these nodules was there a yellow centre or softening, and to the unaided eye they looked very little different externally, or in consistency, from the ordinary crude grey tubercle which is developed into the yellow tubercle.

Thousands of these tubercles were observed throughout the lung, in the middle of the respiratory tissue, near the bronchi and blood-vessels, and in the vicinity of the lobular tissue.

On microscopical examination, in the lung substance were found an immense number of tubercles, so small that they escaped the naked eye. These were generally round, on the cut surface discoid, and when two were confluent, biscuit-shaped, or distorted, jagged, or gibbous.

The round or somewhat oval-shaped tubercles (Figs. 5, 6)

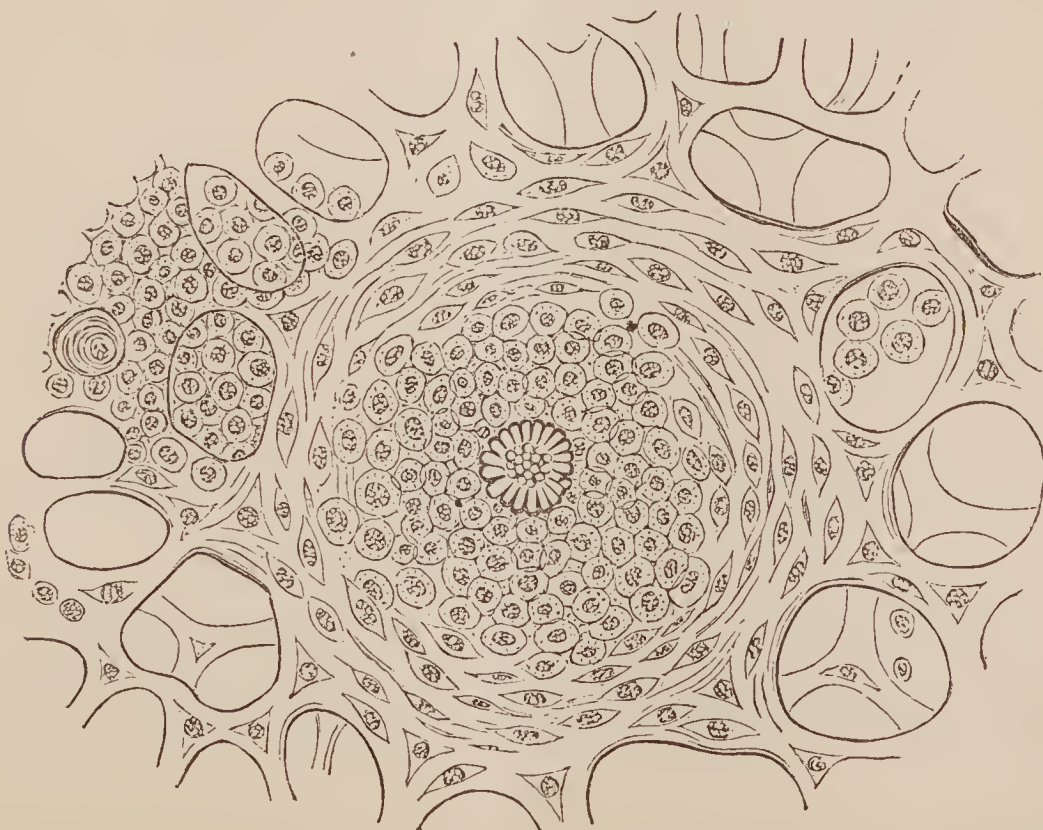


FIG. 5.—A Lung Tubercle or Nodule with an *Actinomyces* Tuft in the centre. From cow's lung.

were generally about 0·45 mm., seldomer 0·30 ; 0·27, or 0·20 mm. in diameter,* and contained either a dark-tinted nucleus, or a spongy structure, with perhaps a dark nucleus in its midst.

This dark nucleus proved to be the most interesting discovery in the diseased lung. It was a round, globular, rarely a slightly oval body, with a diameter of from 0·04 to 0·05 millimetres. Under a low power its contour was sharp and distinct, and it had a yellowish-green tint, with a markedly radiating structure. With a higher magnifying power, the contour was no longer sharp and circular, but notched or indented irregularly, and the radiating lines were found to be minute club-shaped particles,



FIG. 6.—*Actinomyces* Tubercles or Nodules in the lung parenchyma.
From cow's lung.

the smaller extremity being at the centre and the wider part toward the periphery of the mass. Still more highly magnified, there were distinctly observed in these radiating parts,

* A very large tubercle gave the following dimensions : Total diameter, 1·00 mm. ; thickness of fibrous portion, 0·20 ; the middle cell portion enclosing the fungus, 0·60 ; *Actinomyces* tufts, 0·15.

particularly towards the centre, exceedingly minute, structureless granules of a light yellowish-green tint, refrangent, of a diameter between 0·008 to 0·01 mm. (Figs. 5, 7).

In some of the tubercles it was very difficult to discover this radiating nucleus; it was so small and delicate that it had to be looked for with the greatest care and patience, and was often composed of only a small number of the club-shaped radiating portions—from four to six, or only three, starting from a point in the centre.

In each tubercle, around the fungus, and forming a medium stratum, was a large mass of cells, about 0·25 mm. in diameter. These cells were round or slightly polygonal, and lying close to each other (Figs. 5, 6, 7). There were also

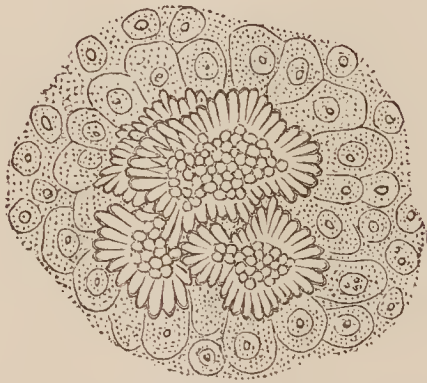


FIG. 7.—An *Actinomyces* Cluster surrounded by a number of large cells. From a cow's lung.



FIG. 8.—*Actinomyces* Sphere, with a supposed central foramen.

spindle-shaped and other cells. The cells of the middle stratum were composed of faintly granular protoplasm, with a large nucleus, which was stained a deep blue by hæmatoxylin. The external stratum was fibrous, the fibres being concentric around the cells; it formed the limit of the tubercle, isolating it more or less from the normal inter-alveolar tissue. There were other tubercles, as before mentioned, in which the fungus was so fine and small as to be difficult to detect.

In the anæmic portion of the lung, vesicular emphysema was well-marked, while in the hyperæmic portion there was no emphysema.

An important question arises with regard to the seat of these *Actinomyces* tufts in the lungs. Are they located in the parenchyma of the lung, the alveoli, or in the lymph or blood-channels, and there give rise to the *Actinomyces* tubercles? It would appear that the tubercles containing the fungus are found in the parenchyma, rather than the alveoli. In the intermuscular connective tissue of the tongue they are nearly always located, and it appears to be the same with regard to the lungs. In both nodules or tubercles there is the same structure—an external fibrous capsule, a middle stratum of cells, and the fungus in the centre; the only difference is, that in the tongue the fungus mass is drusey, in the lungs it is globular.

Professor Marchand, in examining very many microscopical preparations of these lungs, discovered the *Actinomyces* tufts in the finest bronchi, evidently giving rise to a cellular exudation. Thus strengthening the supposition that the fungus finds entrance through the respiratory passages.

Actinomykosis of the Skin, and Submucous and Intermuscular Connective Tissue.

Tumours which have, by some, been supposed to be of a scrofulous nature, and have received various names, such as “Cysto-sarcoma,” “Lympho-sarcoma,” “Hedgehog Throat” in Germany (and not improbably the so-called “wens” in Lincolnshire and elsewhere in this country), are somewhat common in cattle, rarer in other animals. Their chief seat is in the vicinity of the neck and head, towards the parotideal region. Several instances are recorded of similar tumours in other parts of the body, more or less voluminous, and which have, like those in the region of the head, been found to present the characters, and contain the microphyte, which distinguish Actinomykosis.

Perroncito describes a tumour removed from the anterior part of the neck of a three-year-old ox. This tumour had a wide, undefined base, and weighed nearly three pounds. On section,

it was found to be composed of shining connective tissue, encapsulating a sarcomatous mass, which contained small masses of the *Actinomyces*.

Johne alludes to an instance of Actinomykoma on the right cheek of a young cow. It was isolated, the size of a hen's egg, fungiform, and apparently sarcomatous; the skin over it was ulcerated. A test-section removed from it during the life of the animal, was found to contain granulation nodules within which were the *Actinomyces*. Six months after this section was made, the tumour had disappeared, and there was only at the posterior border of the jaw, between this and the parotid gland, a small, spindle-shaped, characteristic *Actinomyces* tumour, and in the loose connective tissue between the upper and lower buccal glands were more yellow nodules, the size of a pea, each containing the fungus. The interesting feature in this case is the disappearance of the tumour without surgical treatment, it having only been dressed with Sulph. Cupri pulv. after the section had been made.

Another instance Johne met with in a two-year-old heifer, which had a round, fungoid, flesh-like tumour, about two inches in diameter, on the right cheek, near the angle of the mouth; it appeared to grow by an ill-defined pedicle from the muscles. The corresponding part of the buccal mucous membrane appeared to be healthy. On the surface of the growth were seen the characteristic yellow nodules, which proved it to be an Actinomykosis tumour. On removal, it was discovered to arise from the intermuscular tissue in the vicinity of the submucous connective tissue. The wound healed by primary intention.

Veterinary surgeon Eckert, of Walthalben, had sent to Johne, amongst other specimens, a round, dense tumour, about three inches in diameter, which had been removed from the sub-cutis, immediately over the masseter muscle, at the angle of the lower jaw. At the upper part of the tumour, at an earlier period, was a small fistulous opening, from which a whitish-yellow pus flowed, but which, having ceased, the opening healed, and the swelling became somewhat less prominent. Shortly before this period, he saw a similar tumour, slightly larger, which, like the other, was attached by strong connective tissue to the struc-

tures beneath. On examination, both tumours were found to be real Actinomykomata ; they were the size of, or bigger than large walnuts, spongy in texture, and full of the fungus tufts enclosed in a capsule of thick connective tissue arising from between the sub-cutis and the inter-muscular connective tissue.

Rabe relates the case of a cow, which had a number of pale, greyish-red tumours, round or somewhat bean-shaped, and of various sizes, on the left side of the face. The largest, about the size of a hen's-egg, was situated at the outer margin of the nostril, where the cutis joins the mucous membrane, and was surrounded by a number of smaller and very small tumours. There were eleven others, varying in size from that of a hazel-nut to a plum, in the masseteric region ; these were more or less apart, but between them were smaller ones, and here and there a marked cordiform kind of swelling—not unlike the inflamed lymphatics of Farcy. The majority of the tumours lay immediately beneath the skin or the fascia of the facial muscles ; the surface was smooth, and each tumour seemed to be isolated from its fellows. Over some of them the cutis had become ulcerated, and they appeared on their upper surface moist, red, and fungoid.

On section of these tumours, there were observed a great number, particularly towards their periphery, of dull-yellow nodules the size of a pin's head, in the neighbourhood of which the tissue was soft, spongy, and moist. On microscopical examination, each of these yellow, submiliary granules was found to contain the *Actinomyces* tufts in abundance, and in their immediate vicinity a great quantity of pus-corpuscles and young connective-tissue cells, with very turbid protoplasm, and other characteristic appearances.

ACTINOMYKOSIS IN MAN.

In mankind, so far as I am aware, only sixteen cases of the disease have as yet been recorded, Dr. Ponfick having observed no fewer than five. All the cases published hitherto have occurred, I believe, in Germany. They are tabulated as follows by Johne :—

No.	OBSERVER.	DIAGNOSIS.
1	Israël	Chronic Pyæmia. Death. ¹
2	Do.	Inflammatory Tumefaction of the alveolar processes of lower jaw, with deep-seated Abscess. Recovery. ²
3	Do.	Subperiosteal abscess at the margin of the lower jaw, coincident with Caries of the third molar. Recovery. ³
4	Do.	Chronic Pyæmia. Death. ⁴
5	Ponfick	Prævertebral Abscess, with Caries of the vertebræ. Death. ⁵
6	Do.	A similar case, and fatal termination. ⁶
7	Do.	Abscess after extraction of an upper molar tooth, immobility of the jaw through Cicatrization, Fistulæ in the temporal muscle and upper part of the neck. Death. ⁷
8	Do.	Prævertebral Abscess, opening into the jugular vein, Metastatic Tumour in the heart, Actinomykotic Peri- and Myo-carditis. Death.
9	Do.	Ulceration of the jaw and Abscess. Partial resection. Recovery. ⁹
10 } 11 } 12 } 13 }	Rosenbach .	Actinomykosis Tumefactions, with deep-seated Abscess. Recovery. ¹⁰
14	Kracke	Particulars not known.
15	Esmarch ..	Particulars not known.
16	Weigert ..	Peripleuritis.

¹ Virchow's Archiv, Bd. 74, s. 15. ² *Ibid*, Bd. 74, s. 37. ³ *Ibid*, Bd. 74, s. 41. ⁴ *Ibid*, Bd. 78, s. 421. ⁵ Breslauer ärztlicher Zeitschrift, 1879, s. 116. ⁶ *Ibid*, 1879, s. 117. ⁷ *Ibid*, 1880, s. 151. ⁸ *Ibid*, 1880, s. 151. ⁹ Mittheil. v. d. Naturf.-Vers. zu Danzig. Berlin Klinik Wochenschrift, 1880, s. 42. ¹⁰ Centralblatt für Chirurgie, 1880, s. 225.

I cannot do more here than briefly refer to some of these cases, to show their relationship to those occurring among animals.

Professor Ponfick's original case was that of a powerfully-built man, aged forty-five, who had suffered from the sequelæ of Pleurisy on the left side for a year and eight months. After death, there was found an extensive prævertebral phlegmonous inflammation in the posterior mediastinum, with a parapleuritic abscess-cavity extending both to the right and left, at the level of the seventh, eighth, and ninth intercostal spaces; with this cavity there communicated a complex system of sinuses, extending through the substance of the longissimus dorsi, the scapular muscles, and the subcutaneous tissues of the whole back. The

sulphur-yellow fungus-bodies were found upon or between the granulations of these sinuses and in their substance, as well as in the sero-purulent discharge; they were also found in a cavity of the size of a cherry, which occupied the centre of a hepatised area of the left lung (lower lobe), as well as in the exudation that filled some of the neighbouring alveoli. The second case was that of a woman aged sixty-one, admitted with an abscess of the lower part of the abdominal wall; she subsequently developed another abscess of the left iliac fossa, without recurring symptoms of peritonitis, and died from exhaustion. After death, caries (with prævertebral collection of pus) of the three lower lumbar and first sacral vertebræ, abscesses in both iliac fossæ, and perityphlitic adhesions, were found. The yellow fungus-bodies were discovered in the pus of the prævertebral abscess. The third case was that of a woman, aged forty-five, who had suffered an injury of the right thumb three years before, with swelling of the arm, which did not subside, but extended to the neck and back, and was accompanied by progressive weakness. The necropsy revealed extensive sinuses on the left side of the neck and in the prævertebral tissue, a knob-like excrescence of new growth extending into the lumen of the internal jugular vein, a tumour, of the size of an apple, growing into the right auricle and ventricle, with corresponding whitish centres in the ventricular substance, and gelatinous nodules in the spleen and in the occipital lobe of the right cerebral hemisphere. In this remarkable case, the fungus-bodies were found in the sinuses of the neck, in the substance of the sarcoma-like growth of the jugular vein, in the tumour of the right auricle and ventricle, and elsewhere. In the fourth case, the illness began fourteen months before death, following the extraction of an upper molar tooth; it consisted of swelling in the region of the right maxillary joint, tumefaction of the face, and subsequently of the neck; successive outbreaks of abscesses and sinuses in these regions. Death occurred from extreme exhaustion. The yellow fungus bodies were frequently obtained in this case from the sinuses during life. The record of the case is too elaborate to be given, even in outline; but it may be mentioned that there was, besides the extensive sinuses and granulation-centres of the face and

neck, a prævertebral abscess extending from the basilar process of the occiput to the fourth dorsal vertebra, with osteophytic growths from all the bones, together with caries of both occipito-atlantal joints and of the right atlanto-axial. In the fifth case—a boy—the first indication of illness was a year before death, when he had symptoms of Pleurisy; nine months later, there was a new and much more severe affection of the same side, with general dropsy, progressive swelling in the lower part of the back, and evacuation of pus from a cavity opposite the eleventh left rib. *Post mortem*, a large prævertebral cavity was found on the left side, partly retropleural at the level of the eighth, ninth, and tenth ribs, and partly retroperitoneal at the level of the last two ribs and the left kidney; also several perforations of the diaphragm. There were numerous centres of Actinomykosis in the muscles of the back, in the intercostals, and in the left psoas muscle; also in the muscular substance of the left ventricle, and in the upper end of the spleen.

In Rosenbach's cases, the disease commenced in the neighbourhood of the jaws, and appeared to be in some way dependent upon carious teeth, involving the dental alveoli. Ponfick and Israel had remarked on this tendency of the disease to originate in the teeth or their sockets. This local affection is not unfrequently followed by metastatic abscess in the liver, spleen, intestine, and muscles. Death seems to result from Chronic Pyæmia, or from exhaustion, as a consequence of protracted and pernicious suppuration. In mankind the tendency of the disease is to the formation of abscesses and suppurations; in bovines, to tumours and small nodules.

In all the detailed reported cases occurring in man, there have been found, in the pus of the abscesses, immense quantities of small nodules, the majority being the size of a pin's head, sulphur-yellow in tint, and generally soft and tallowy in consistence. These are agglomerations of the *Actinomyces*.

The Actinomyces.

The botanical character of the *Actinomyces* does not seem to be yet clearly established. Harz, who first studied its morpho-

logy and biology, was inclined to consider it as belonging to the class of moulds (such as the *Penicillium glaucum*), but Karsten thought it should be included among the *Coniomycetes*, as the "rust" and "smut" of cereals and grasses, and therefore belonging to the *Ustilaginæ*. So long ago as 1870, Professor Hahn, of the Munich Veterinary School, had discovered in a case of "Wooden Tongue" (*Holzunge*) characteristic organised bodies, which looked like a kind of brush-shaped mould. When Bollinger drew attention to the disease in 1877, and to the presence of these fungi, Harz made a special investigation of them, and from their eccentric radiating structure gave them the name of *Actinomyces*. As has been already shown, the fungus is contained in nodules which are often soft or puriform, and forms a pale-yellow, brownish, or greenish-yellow, globular tuft, which, under a low microscopical power, offers a radiating arrangement of its substance, from the centre towards the periphery, reminding one somewhat of the crystals of certain fat acids. The larger of the tufts, which generally are composed of two or more mulberry-shaped masses, often appear to the naked eye as very small, millet-sized bodies. When properly prepared and highly magnified, if the nodules were embedded in tissues, they are observed to be composed of a kind of fibrous capsule; within this a layer of cells, for the most part of a lymphoid character; nearer the centre are larger cells, like ordinary epitheloid cells; and in the centre the *Actinomyces* clusters.* Iodine, anilin, and picric acid give these a characteristic reaction, the cell-membrane generally offering a cellulose reaction. Alcohol, æther, acids, and alkalis have no immediate effect upon the fungus tufts, and this distinguishes them from such bodies as fat crystals. By pressure, the globular tufts can be broken up into numerous kind of wedge-shaped pieces of various sizes, from 0·010 to 0·050 millimetres in length, and the majority are about equal in breadth towards the end. Each piece is composed of a great number of individuals, every one of which is somewhat conical, from 0·0005 to 0·0020 millimetres

* A good method of showing the *Actinomyces* is to cut sections, and stain them singly with Spiller's purple, or doubly with it and diluted soluble blue. To demonstrate the separate parts of the nodule, a small portion may be teased out in glycerine.

broad, about 0·0045 millimetres long, representing the mycelium, from which begins a central base-cell or basidium. From this arises a two to nine-stalked hyphen, from 0·0005 to 0·002 mm. in diameter, and at the extremity of the stalks or sterigmata are the conidia.

(To be continued.)

NOTES ON CATTLE DISEASES IN THE PUNJAB, INDIA.

BY VETERINARY SURGEONS QUERIPEL AND NUNN, ARMY
VETERINARY DEPARTMENT, RAWUL PINDI, INDIA.

(Continued from p. 98.)

As during the year 1881, a number of outbreaks took place, and it was seen that nothing could possibly be done until legislation on the subject existed, a short Act—copy of which is attached, Appendix B—was submitted for the consideration of the Punjab Government by Veterinary Surgeon Queripel, and it is hoped that the time is not far distant when it will receive the sanction of the Imperial Government. It will be noticed that isolation and quarantine are the measures mainly relied on, for, as before stated, the question of occision cannot be entertained, owing to caste prejudices. In framing the Act, it had also to be borne in mind that we were dealing with a people totally ignorant of the advantages to be derived from it; for this reason it was endeavoured to make it as little irksome as possible at first, reserving to the Local Government the power of hereafter framing such rules as would tend to its better working. In forwarding this Act for the consideration of Government, the necessity for asking for the hearty co-operation of the rulers of Native States in the matter was pointed out, or, as was stated in the event of this not being obtained, it would be necessary to totally prohibit the entry of any cattle, hides, or other articles from their territory when any contagious disease was known to exist, and it would be imperative to make it obligatory on their part to inform the Local Government when any such disease was prevalent.

This Act met with the warm approval of the Financial Commissioner, but the late Lieutenant-Governor was of opinion that

the time had not as yet arrived for legislation on the subject to be adopted, expressing at the same time his opinion that, as in western countries, nothing but occision had been found sufficient to eradicate Cattle Plague, it would be useless to introduce any less severe measures. This, however, we fear, was owing to a misunderstanding of the case, for in the first place we have contagious diseases other than Cattle Plague to deal with; and again, although we cannot eradicate the disease, still we can, without harassing the people to any very great extent, prevent its extension, and by so doing we would be conferring an incalculable boon on the country. To show how necessary it is that the matter should be speedily taken up, we would give the following extract from a report lately received from a Deputy-Commissioner, or chief civil officer, of a district of this province, wherein, stating that cattle disease is prevalent, he adds:—"The people will do nothing at all to try to prevent or mitigate the cattle disease. They say it is fate, and will not take the trouble to isolate those attacked, as it is too cold in the open, and too much trouble and expense to build sheds specially for them."

It certainly should not be permitted that the apathy of the people in one district should be allowed to exist to the ruin of the farmers of neighbouring districts, for the disease must and will surely spread.

The necessity for legislation is perhaps more clearly seen when we consider the enormous cattle-fairs held annually in the Punjab: at a rough calculation it is estimated that 400,000 are collected for sale at these fairs. If, therefore, as has been before stated, animals from infected centres are allowed to proceed to them and to be exposed for sale; and, further, if no legislation exists, by which the movements of affected cattle can be governed, it must not be a matter for surprise if the disease obtains at times most gigantic proportions, far beyond all control. It is at these periods that the disease may be said to stamp itself out, by removing every head of cattle in the infected place. We have alluded solely to the existence of cattle disease in the Punjab, as we are intimately acquainted with it in this province.

From weekly reports on sanitary and agricultural subjects

published in the North-Western Provinces and Oudh, it would appear to be widespread there also from time to time. For some years this government had the services of a veterinary surgeon placed at its disposal, and it is to be regretted that this is not continued. Again, in Assam it is very prevalent; in British Burmah also it is said to prevail to a large extent, but here the services of Veterinary Surgeon Frost are available.

It will therefore be seen that the requirements of this country are large, if Government wishes to adopt measures that will successfully guard it against the ravages of the various epizootics that exist in India. We, as a profession, naturally anxious to bring the knowledge of veterinary science to the aid of the agriculturists of this country, who annually suffer such losses, are deeply indebted to the Editor of THE VETERINARY JOURNAL for having brought the matter so prominently forward, and we are glad to see from the letter of the Secretary of State for India, that the reduction in our numbers is solely for military purposes, and that the question of the civil requirements will meet with further consideration.

To conduct the duties of a civil department in this country satisfactorily, it would, in our opinion, be necessary to obtain the following staff:—(1) Veterinary Officer, who would hold the same position with reference to the Imperial Government as the Surgeon-General does. It would be his duty to advise Government concerning the outbreaks which might from time to time occur, and to suggest such rules for their suppression as would suit the various localities at which they might appear; this power to frame rules having been reserved to the Local Governments in the proposed Act. This officer would have the direction of all officers serving in the civil department, and in this way one general system for the whole of India would be in force. To this officer all returns would be furnished by the other veterinary surgeons serving in different provinces, and from his office all statistics as to mortality, etc., would be obtainable.

To assist this officer in properly carrying out the provisions of this act, the following would also be required:—

Veterinary officer for each of the following provinces:—

Punjab, North-Western Provinces and Oudh, Lower Bengal, Central Provinces, and Assam.

The question of the requirements of the Madras and Bombay Presidencies would have to be separately considered.

These latter officers would be purely executive, and, working under their respective governments, would be able to advise with them as to the best measures to be adopted in severe outbreaks. We have stated that one officer would be required for each province. This would be necessary at the onset, but as the people became more enlightened, and more stringent measures could be adopted, it would be necessary to appoint a second veterinary officer to each province if immunity from contagious diseases is desired.

To enable the work to be carried out, it would be necessary to have a good subordinate staff; this would, of course, be carried on through native agency, and might be based on the subordinate medical staff of the Indian Medical Department, except that it would not be necessary to have highly trained men, as the real requirements of the country are veterinary sanitary police. In this way they would not be highly paid officials, but still might be made very effective. They should be recruited from the class of zemindars or farmers, who are accustomed to cattle from their early childhood. They should be taught the rudiments of medicine, and should also know the treatment of the more common bovine and ovine diseases, in order that, when not employed on sanitary work, they might afford assistance to the farmers, and in this way they would specially be trusted and appreciated by the people. The chief subjects, however, in which they should be carefully trained, are those which should regulate the movement of cattle during the prevalence of any epizootic, the isolation of sick, and general rules which would obtain whilst an epizootic existed in their district. One of these subordinates should be appointed to every tehsil, or sub-division of each district, and should work under the direct superintendence of the tahsildar, or native magistrate, and under the orders of the Deputy-Commissioner of the district. This system has been tried in the Rohtak district, where Rinderpest has prevailed to a great extent. The Deputy-Commissioner of that district, seeing that something

must be done, appointed them, and the working of the system has been carefully watched and can be strongly recommended. Their pay is only Rs. 10 per mensem, whilst the head man, who travels about to superintend the working of the others, receives Rs. 15. Here, therefore, we have an inexpensive, but at the same time a most useful, staff. One of the duties of the executive veterinary officer or officers of each province, would be the selection, education, and practical training of these men. This would really form one of his most important duties, for on the good working of his subordinate staff would depend the success of the various measures which would be adopted for the suppression or prevention of contagious diseases.

APPENDIX A.

Rules recommended to be translated and widely circulated. April, 1879 (First phase of Afghan War).

1. On the appearance of Cattle Plague or Foot-and-Mouth Disease, notice should at once be sent to the Deputy-Commissioner.

2. A reward of Rs. — will be given to whomsoever may bring the first intelligence.

3. Immediately on its appearance, a piece of ground outside the village should be set apart, and every affected animal must be sent there under a penalty for non-compliance. This piece of ground should be well removed from any line of traffic, and should be to the leeward of the village (that is, calculating on the prevailing winds), as infection is likely to be conveyed.

4. According to the number of animals attacked one or more men should be employed by the villagers, whose sole duty should be that of tending the cattle. No other persons on any consideration should be allowed near the cattle, and nothing should be allowed to leave the place. All excreta, etc., that can be burnt should be disposed of in this manner, the rest should be buried in the same manner as will hereafter be laid down for the disposal of carcasses.

5. On the death of an animal the hide should be deeply slashed with crucial incisions, and the whole buried to the depth of four

feet, quicklime to be thrown over it. Inattention to this order to be punished by the infliction of a severe fine on lambadar, (head man of village) and owner. Place of burial to be as close to the place of isolation as possible.

6. No convalescents should be allowed to leave until three weeks after recovery.

7. The place in which an animal has become affected, prior to removal, should be disinfected in the following manner:—All ground, floors, mangers, etc., to be removed and replaced by fresh earth, wooden work to be covered with quicklime. Fumes of sulphur to be extensively used. The clothes of the attendant to be well boiled before he is allowed to go near any other animal.

8. The fact that a village is infected should be widely proclaimed to surrounding villages, and the zemindars should be warned not to allow any cattle from the infected centre to approach a healthy village. All traffic should be stopped as far as possible, and all fairs suspended.

9. On the termination of the outbreak any temporary structures that may have been erected on the place selected for isolation to be burnt, the place to be thickly strewn with quicklime, and then deeply ploughed.

10 and 11. Relate to treatment in cases of Foot-and-Mouth disease.

12. In both diseases most scrupulous cleanliness is required.

APPENDIX B.

Draft of Proposed Act for Preventing the Extension of Cattle Plague.

Short Title of Act.

I. The Cattle Plague Act.

Definition.

II. The term cattle includes bulls, cows, oxen, heifers, calves, and buffaloes.

The term animal means cattle, sheep, and goats.

The term Cattle Plague, the disease known as Rinderpest, but

more commonly called Cattle Plague, also known in vernacular by many names, but more commonly as "Wah," or "Zaimat."

First Report.

III. On the outbreak of the disease, the owner of the animal and the police are at once to report the fact to the tahsildar, or nearest magistrate, who will without delay report the same to the Deputy-Commissioner. The latter officer shall then communicate the fact by telegram to the Commissioner of the Division, and also to the Local Government. Any owner of affected animals, or police constable, who neglects to report the disease, is held guilty of an offence under this Act, unless he can prove, to the satisfaction of the magistrate before whom he is charged, that he did not know the same to be affected, and that he could not with reasonable diligence have obtained such knowledge.

Declaration of an Infected Place.

IV. When such report has been made, the inspector appointed by the Local Government shall, with as little delay as possible proceed to the spot, and if he certifies in writing that the disease exists, the place shall be declared an infected place.

Area of Infected Place.

V. The area of an infected place shall include the field, stable, cowshed, or other premises in which Cattle Plague has been found to exist, and all lands and buildings lying contiguous, also an area comprising one mile in every direction from the boundaries of these lands or premises.

Extension of Infected Place into another District.

VI. If the infected place is on the borders of two districts, the Deputy-Commissioner of the district in which the disease originally broke out may, in communication with the Deputy-Commissioner of the other district, include in the infected area a portion of that district not exceeding one mile from the boundaries of the infected premises.

Notice of Declaration of Infected Place.

VII. Every declaration of an infected place shall be published

n the Punjab Government *Gazette*, and locally every land and householder living within an infected area shall be warned of the fact by the police, who shall be held responsible that this is done.

Census to be taken.

VIII. On a place being declared an infected locality, a careful census of all animals should be made by the lambardar and patwaries, who will be held responsible that it is correct. It should contain all particulars of bulls, oxen, heifers, calves buffaloes, goats, and sheep, together with the owners' names, who, whilst the place is infected, shall report all births and deaths within twenty-four hours to the lambardar. The lambardar to submit a daily return to the tahsildar.

Fairs and Movements of Animals to be stopped.

IX. All fairs and markets shall be stopped in any district in which there may be an infected centre, and no animal, or anything which has been in contact with that animal, shall be moved without license from the inspector, or other competent authority named by the Local Government, until such district be declared free.

Offences as to Infected Places.

X. If any animal's hide, skin, hair, wool, horn, hoof, offal, carcase, dung, hay, litter, or any other thing is moved in contravention of the rules of this act with respect to infected places, every person moving the same or causing the same to be moved shall be held guilty of an offence against this act.

Exception for Railways.

XI. The rules of this act with respect to infected places shall not restrict the moving of any animal or thing by railway through an infected place, such animal or thing not being stopped within the infected place.

Formation of Lazarettos.

XII. On the outbreak of Cattle Plague, the local authorities shall, in every village in which the disease may appear, appoint a secluded place which, with reference to prevailing wind, should be to leeward of village, as lazarettos. The lambardar

shall be held responsible that all cattle affected are to be removed to it immediately, special attendants and utensils to be told off, and not to leave until the locality is reported free.

All dung, litter, etc., shall be burned daily, and whilst occupied as a lazaretto, no person shall be allowed to enter. The lazaretto shall be surrounded by a temporary fence of thorns or other brushwood.

Removal of Cattle from Infected Sheds.

XIII. Cattle remaining in sheds and stables from which sick have been removed, are to be confined there until the district is declared free.

Cleansing and Disinfection of Sheds.

XIV. Every shed, yard, or stable from which a sick animal has been removed, shall be disinfected in the following manner. All woodwork to be scraped and covered with newly-made limewash, the ground of flooring to be removed to the depth of two feet, all walls to be scraped and freshly lepied ;* all hay, litter, dung, or other article that has been in contact with the diseased animal shall be burnt.

(*Note.*—For this purpose a quantity of lime should be supplied by local authorities, and as the burning of sulphur in sheds is strongly advocated, a supply of this article is recommended if the expense can be met.)

No fresh Animals to be admitted into Infected Places.

XV. No fresh animal to be admitted into any yard, shed, stable, or field in which any animal affected with Cattle Plague has been kept or has died, until the expiration of thirty days after the cleansing and disinfecting of such premises in pursuance of this act.

Burial.

XVI. On the death of an animal it shall be buried in some place removed from the village and close to the lazaretto, which should be set apart for this purpose. The depth of the place in which an animal shall be buried shall not be less than six feet, the hide shall previously be slashed, and the carcase covered with a sufficient quantity of quicklime.

* Lepied means coated with mud-plaster, common in this country.

Carcase not to be dug up.

XVII. Any person who shall dig up, or cause to be dug up, the carcase, or any part of the carcase of any animal so died, shall be held to be guilty of an offence under this act.

Discontinuance of Declaration of Infected Places.

XVIII. A place shall be declared to be free from Cattle Plague at any time after the expiration of twenty-eight days from the disappearance of the disease. The Deputy-Commissioner of the district shall report the fact in order that it may be published in the Punjab Government *Gazette*.

Termination.

XIX. On the place being declared free a final census of all animals shall be taken. The lazaretto shall be burnt and the ground strewn with lime and dug up.

Power of Duty of Inspector.

XX. An inspector or other officer authorized to act in execution of this act may at any time enter any field, stable, cowshed, or other premises within the limits to which this act may extend when he has reasonable grounds for supposing that any animal affected with Cattle Plague is to be found. He may also at any time inspect any railway, boat, or other vehicle proceeding from or passing through an infected district. He may, if he has reasonable grounds for suspecting that the animals are being moved in contravention of this act, detain the truck, boat, or other vehicle, reporting the matter to the nearest magistrate, who will, if so satisfied, deal with the case in accordance with the provisions of this act. If any person refuses admission to or obstructs or impedes such inspector, he shall be deemed guilty of an offence against this order.

Duties and Powers of Police.

XXI. The police shall at all times assist the inspector and shall be held responsible that his orders are carried out.

Any police constable may proceed as follows :—

(a) He may apprehend any person found committing an offence against this act with respect to infected places ; he shall take any person so apprehended as soon as possible before the

nearest magistrate to be examined and dealt with according to law. A person so apprehended shall not be detained in custody by any constable without a warrant longer than is necessary for bringing him before a magistrate.

(b) He may require that any animal or thing removed from an infected place in contravention of this act be forthwith taken back within the limits of that place.

Powers to Local Government to frame Rules.

XXII. The Local Government may from time to time, with a view of preventing the spreading of Cattle Plague, make regulations for the following purposes :—

For prohibiting or regulating the movement of animals on to, and the keeping thereof on, commons or wastes whereon there exists a right of common.

For preventing any person from driving animals under his charge on any high way.

For preventing or regulating the traffic of hides or other articles that have been in an infected place.

For providing for the cleansing and disinfection of sheds and places used by animals affected with Cattle Plague.

For prohibiting or regulating the entry of cattle or hides into any district from adjoining native states when Cattle Plague is known to exist there.

Evidence of Disease.

XXIII. The certificate of an inspector to the effect that an animal is affected with Cattle Plague shall for the purposes of this act be conclusive evidence in all courts of justice and elsewhere of the matter certified.

Penalty.

XXIV. Any person infringing any of the provisions of this act shall be liable to a fine not exceeding Rupees fifty, or to a term of rigorous imprisonment not exceeding one month, or both.

THE ECHINOCOCCUS VETERINORUM IN A HORSE.

BY W. R. RAYMOND, A.V.D., 17TH LANCERS, INDIA.

I HAVE just discharged, cured, from the Sick Lines, 17th Lancers, a horse which was attacked with *Echinococcus Veterinorum*; and as, from a perusal of the English and few foreign works at my disposal, amongst others Cobbold's "Bibliography," I find the literature of hydatid disease of the horse very scarce, I deem it my duty to put this case on record.

The host is a chestnut Arab gelding, 18 years old, and has never been unwell. It was admitted on the 20th December, 1882, with a very large, hard, but painless tumour on the near side, extending from about the ninth to fourteenth ribs. The swelling was treated with Biniod. of Mercury, and after two applications a large abscess was found, ripe for lancing. No sooner had the lancet penetrated than a deluge of clear watery fluid and hydatid capsules issued and fell on the ground; but, after the first rush, I was able to catch enough specimens to fill two pint bottles. I evacuated a good many more, but, having no more bottles ready at the time, I did not preserve them.

On introducing my finger into the wound, I discovered a cavity between the panniculus and ribs capable of containing about a pint of liquid. From this space a passage, measuring one inch horizontally and two inches vertically, led, through the ribs, to an inner chamber, of which I could touch neither sides nor bottom. I was afraid to use a probe lest I might pierce the pleura.

For two days after the operation capsules, full and empty, issued in ones and twos whenever the patient moved. On the third day suppuration set in.

The wound was fomented, and healed rapidly. The horse showed no constitutional symptoms throughout, nor any pain when the place was touched.

I reckon that, from beginning to end, nearly a gallon of liquid and hydatids was evacuated.

The cysts varied in diameter from a quarter of an inch to two inches. They had mostly daughter, and some few grand-daughter, vesicles inside them.

Under the microscope they appeared similar to the ordinary

Echinocci of other domesticated animals. All the capsules I examined had heads in them. A good many of the burst vesicles were yellower than I have seen them before, which may have been due to age, or perhaps to the application of the Biniodide of Mercury.

Whilst removing the hydatids after lancing the abscess, I attempted to obtain additional information concerning the case from the syce in charge. He, however, knew nothing, but another man, also employed in the Sick Lines with another horse, hearing my questions, volunteered the following. He states that he has known the animal since it joined in 1869, and used to groom it. Seven years ago a swelling, about as large as half a walnut, appeared on the near side, which he showed to the sergeant who rode the horse. It was thought to have been caused by the saddle, and as it got no worse no further notice was taken. He says that the enlargement went on increasing very slowly indeed up to within a few months, when its growth became accelerated.

The syce's statement is supported by that of the farrier of the troop, who tells me that when he took over charge, three years ago, he wanted to have this horse sent to the infirmary, but was told there was no necessity, as the lump had always been there and in no way interfered with the animal's work. It was then much smaller.

It is well known to all interested in helminthology, that hydatid disease is exceedingly prevalent amongst the cattle and sheep in India, which is not extraordinary, considering where and what they feed on when grass becomes scarce. I myself have attended and made *post-mortems* of a good many bullocks, and about a hundred sheep at odd times. I can only call to mind the case of one bullock entirely free from cysts. The greater part of the lungs of another animal, also a bullock, belonging to the Nehow Heavy Field Battery, which died about eighteen months ago, had become absorbed, the space being occupied by Echinococcus cysts.

As regards the locality generally infested, I have found that in cattle the lungs and liver, in sheep the mesentery and lungs, most frequently hold them.

In horses my experience is limited to this one case.

ACUTE LAMINITIS, WITH CONSTIPATION OF THE BOWELS.

BY H. THOMPSON, M.R.C.V.S., ASPATRIA, N.B.

ON Sunday, the 13th Nov., 1881, I was requested to attend a half-bred cart mare, the property of Mr. Richard Graves, Gill-head Colliery, Hemly Marypit. Early in the morning the mare was found suffering from acute founder, when the shoes were removed and the animal put on to soft wet clay, one quart of raw linseed oil administered, and a man dispatched for me. Being from home at the time, it was 6.30 p.m. before I saw her, or about twelve hours after she was first observed. I found her in a fearful condition; perspiration dropping from her body, respiration hurried, pulse full and strong, eyelids dark-red, no fæces having been passed during the day, urine dribbling from her on the slightest movement, and feet so painful that she would not stir. Had all the clay removed at once, and put on *cold* bran poultice; abstracted nine quarts of blood from the neck, and gave Aloes ʒvj, and left Tr. Aconite F., to be given in twenty-drop doses every six hours in a little cold water, and warm water injections every four hours.

Nov. 14th, 9 a.m.—No improvement, bowels not acting, gave injections of Aloes in solution ʒiijss; continue Aconite with Potass. Nit. ʒjs, morning, noon, and night, in three quarts of cold water, and continue warm water injections every three hours.

9.30 p.m.—No response from the bowels, mare rather easier, perspiration not so profuse; administered Aloes ʒiiijss in solution, with Ol. Lini. ʒx; and same quantity of Aloes was given per rectum as an enema.

Nov. 15th, 9 a.m.—Bowels still constipated, rectum dry on examination, eyelid injected, pulse wiry and quick, respiration hurried, perspiration pouring from the body, lungs threatened with congestion; gave Lig. Amm. Acetate Concentrate ʒij, Spt. Nit. Æth. ʒj, aqua ʒj; continue warm water injections, with Aconite and nitrated water to drink, and poultices constantly wet with cold water.

9.30 p.m.—Mare very bad, throws herself down; gave Aloes ʒiv dissolved in water, and Ol. Lini. Oss.; continue Aconite and nitre drinks.

The animal by this time had received Aloes $13\frac{1}{2}$ drachms, and Ol. Lini. 3 pints, with Aloes 7 drachms, as injections.

Nov. 16th, 2 a.m.—Mare passed a quantity of dry malted *whole* Indian corn; after this she appeared easy, bowels responding freely, scarcely anything but whole Indian corn passing.

9 a.m.—Very much improved, gets up and walks about the box, drinks nitre water and well-boiled oatmeal gruel; all the active symptoms abated, bowels acting in great force.

7 p.m.—Picking a little hay and bran-mash, all the symptoms favourable.

Nov. 17th.—Continues feeding, walks round the box, but very tenderly, bowels getting into a nice consistency; continue Aconite and nitre water three times in twenty-four hours; ordered poultice to be removed for four hours out of the twenty-four.

Case continued to go on all right, had shoes put on within three weeks, and sent on to the land to plough stubble.

INVERSION OF THE BLADDER (PROLAPSUS VESICA).

BY J. DIBBEN, M.R.C.V.S., A.V.D., 5TH LANCERS.

THE subject, a mare five years old, was originally under treatment for a severe injury to the off hock. Being excessively lame, she was placed in slings, remaining in them for about two months, when she was removed into a loose box; she was very much emaciated. About this time, what was thought to be a tumour or vaginal polypus, was observed protruding between the labia of the vulva. Not being satisfied as to its nature, I mentioned the case to Mr. Murray, A.V.D., and he kindly saw the mare with me. On careful examination, the two nipple-like openings of the ureters were seen, from which small jets of

urine escaped every few minutes, leaving no doubt that the case was one of inversion of the bladder. The bladder was at this time about the size of a newly-born child's head, cone shaped, hanging by its neck, the ureters being exposed ; the outer surface was smooth and of a bright-red colour ; there was great thickening of the walls. The mare was apparently in good health, pulse, temperature, and respirations normal, appetite good. After making several ineffectual attempts to return the bladder, I decided on amputation. A ligature was placed round the viscus about an inch posterior to the ureters ; this was left on for two days, being tightened daily ; the patient during this time evincing signs of abdominal pain. On the third day the body of the bladder was amputated ; there was very little hæmorrhage. The wound was cleansed several times a day with carbolised tepid water, Ol. Lini. Ojss was given immediately after the operation, followed by small doses of Tinct. Aconite occasionally. Next day the patient was not feeding ; pulse, temperature, and respiration accelerated, great disinclination to move, and when moved did so with difficulty. Warm fomentations were applied to the lumbar region, and warm water was thrown into the rectum every hour. On the third day the patient began feeding ; the pulse, respiration, and temperature were about normal ; wound healthy, evacuated a little urine about every five minutes, placing herself in proper attitude. Five days after the operation the neck of the bladder receded into the vagina, leaving nothing to show of the operation. The mare did well afterwards and improved greatly in condition, but being of no further use as a trooper, was ordered to be destroyed about two months after the operation.

The *post-mortem* examination showed the wound to be perfectly healed, and the remaining internal organs healthy.

Editorial.**FOOT-AND-MOUTH DISEASE.**

THE agricultural interests of this country have for several years been subjected to a series of misfortunes which have more or less affected the entire community; but this year, so far as it has gone, threatens to eclipse those which have been considered unfortunate for agriculturists and stock-keepers. To weather which, during some months, has been simply disastrous, so excessive has been its humidity and absence of sunshine, there is added a widespread outbreak of that harassing and impoverishing scourge, Foot-and-mouth disease, which looks as if it would give the *quietus* to many stout-hearted farmers who have weathered the storm until it appeared.

It must be confessed that it is greatly discouraging, after so many years' legislative restrictions and heavy expense, to find that this country is still ravaged by a purely contagious disease which it is not surely beyond the power and skill of veterinary science, in a country like our own, to thoroughly eradicate. We do not impute blame to any one in the matter, but nevertheless we cannot but regret that long ago strenuous efforts were not made to extinguish this and similar pestilences which annually cause great loss, and are a perpetual source of embarrassment and annoyance.

It is a great mistake to suppose that every outbreak of one of these scourges—such as the one under consideration—is due to foreign importation. Nothing of the kind. Foot-and-mouth disease is never absent from some part of the country, and often there are many centres where it is as active and virulent as when it was first introduced. These centres are a standing menace to other districts free from the infection, and it needs but little sometimes to fan the smouldering embers into a widespread conflagration. Such is the history of the present explosion of the disease. It has broken out of its bounds and has been spread in the usual old-fashioned way, just as if there was no Contagious Diseases (Animals) Act in existence, and no machinery to oppose its advance.

The fact is, contagious diseases of this description will never, can never, be stamped out in these kingdoms, even if no fresh importation from abroad could be absolutely guaranteed, under present conditions. There is no energy or combined effort to effect their extinction—no central authority to initiate and carry out a bold and uniform system of suppression. Entrusting the business to local authorities is futile in the extreme, as the experience of many years demonstrates; for while one body may act with energy and intelligence, another will be as stupid and perfunctory. England, Ireland, and Scotland are now suffering from this malady, and the losses it will cause before it is again brought within its ordinary dimensions will form a bitter addition to the calamities we were already suffering from—all the more bitter, too, as this loss was preventible, while those due to inclement weather are beyond the power of man to avert.

The fact might as well be looked in the face, that we shall always be liable to these outbreaks of Foot-and-mouth disease so long as it is

allowed to linger in these kingdoms, even if all communication with other countries were completely cut off. However much we may lament such an occurrence, there is no reason for expressing surprise at it. The infection will spread just as it finds opportunity, and the rapidity and extent of its invasion will be that of the means and the channels by which it may be conveyed.

The same remarks apply to Lung-plague. This malady is far from being suppressed, and it will never, in all probability, be got rid of by the present machinery and method of dealing with it. Though it is stated that this grave disorder is extinct, or nearly so, yet we are assured that if we desire a specimen of diseased lung, we shall not have much difficulty in obtaining it.

The calamities heaped upon us by unfavourable seasons we may grieve at, but we cannot rail against; those from which we suffer through our own indifference or neglect, are certainly irritating and mortifying, to say the least of it.

Contagious diseases are not to be trifled or temporised with, but demand wise measures, promptly, vigilantly, and thoroughly carried out with a view to their total suppression. They can all be extinguished, but this requires different treatment to that with which we are familiar in this country.

INFLUENZA AMONG HORSES.

RECURRING outbreaks of the disease commonly known as Influenza, though they may be inconvenient, and are often serious enough, do not generally cause great alarm, or attract much attention. But when an invasion of the disorder comes upon us under a new name, then inquiry and apprehension are stimulated, and the non-veterinary portion of the community dread the consequence of its appearance. A somewhat widespread epizooty of Influenza—that multiform and infectious malady with which we are so familiar—has been prevalent for some weeks, but under the inapplicable and ridiculous designation of “Pink-eye”—a designation which should not be admitted into veterinary parlance; and the strange and startling name has caused much consternation. There does not appear to be anything noteworthy beyond other attacks of Influenza we have witnessed. Many years ago we formed the opinion that it was infectious, and in “*Veterinary Sanitary Science and Police*” we included it among the transmissible diseases of animals. Our contemporary, *The Field*, gives the following interesting notice of the present outbreak.

“All the information obtained during an inquiry in the districts wherein the disease prevails which is now known as Pink-eye, strengthens the conclusion that the affection is not a new one, but a severe form of the disease which has been familiar to horse-owners from time immemorial, under the comprehensive title of ‘Influenza.’

“In its most common and therefore generally recognised form, Influenza assumes the character of Catarrh of the mucous membrane of the respiratory passages, with general prostration and low fever; but in the course of the last thirty years we have met with the disease under various guises. Sometimes the outbreak is distinguished by complications, in which the digestive organs are chiefly implicated; the visible mucous membranes are not only injected with blood, but also present a distinct biliary tinge, denoting derangement of the liver. This form of Influenza has prevailed within our recollection, during several of the periodical outbreaks which have occurred

within the time we have mentioned; and the term 'Bilious Fever' was generally used to distinguish this phase of Influenza from the ordinary catarrhal type.

"Again, Influenza has repeatedly been associated with swelling of the eyelids, and injection, with consequent redness, of the conjunctiva. Frequently this symptom has been so constant, that the remark of the groom, 'There's another with his eyes bunged up,' was accepted as an equivalent for any more technical or refined description of the disorder.

"Swelling of the joints has often been observed as a special feature of some outbreaks of Influenza, and we have a vivid recollection of the unfortunate results of this complication in the case of horses which had reached the convalescent stage after a severe attack. In many cases the swellings were attended with excessive pain, and in some instances extensive suppuration took place, and fatal exhaustion resulted.

"Congestion of the lungs has been noted as a common phase of Influenza in some seasons, and we recollect more than one outbreak in which a low form of Pneumonia, with abscesses in the lungs, was a frequent feature.

"The symptoms which have recently been observed in cases of so-called Pink-eye, in different districts, vary to some extent, but the following description includes all the most prominent indications of disease.

"At first the animal appears to be dull and disinclined to move; stiffness of the loins, as if from a severe sprain, is a peculiarity of the early stage of the affection. Swelling of the eyelids, and consequent closure of them, follows; and when the lids are separated the membrane is seen to be of a red or pink colour, often with a tinge of yellow in addition. Discharge of tears takes place generally, but the common symptom of ordinary Influenza, discharge from the nose, is usually absent in this form of the malady. Quick and weak pulse, frequently ninety in the minute, with an elevated temperature— 104° to 105° or even higher—are also among the symptoms which have been observed. Want of vital energy is evident throughout the attack.

"As the disease advances to the later stages, the prostration becomes more marked. The secretion of urine is scanty, and very often the constipation which marks the early stages is succeeded by diarrhœa, the discharges being profuse and fœtid.

"In regard to the intestinal complications, the disease appears to present quite different features at certain times and in different districts. Some veterinary surgeons state that they have not met with a case of Pink-eye in which diarrhœa was a symptom, while others have remarked its presence in the majority of the cases which have come under their care. Possibly the mode of treatment, medical and dietetic, may have something to do with this difference.

"Extension of the irritation down the larynx and windpipe are results which have been observed in many cases, but it does not appear that the lungs are implicated, except in the worst forms of the disease; and then extreme congestion of these organs, with the formation of abscesses and the occurrence of partial gangrene, necessarily lead to the death of the animal.

"Up to the present time, Pink-eye has been most prevalent in Derby, Nottingham, Wakefield, Newcastle-on-Tyne, and Sunderland. In Derby the disease appeared shortly before Christmas, and during January it extended rapidly in the town, and has reached some of the surrounding districts. The Corporation stables are perfectly paved, drained, and ventilated, and the horses are well managed in regard to work and feeding; notwithstanding which, thirty animals out of forty-two were attacked, and six died—a large proportion under such favourable conditions. No cause for the outbreak could be assigned.

"The occurrence of Pink-eye at Nottingham is attributed to the introduction of some Russian ponies, which were landed at Hull and sent to the Notting-

ham district to be used for pit-work at the Charlestone Colliery, near Wakefield. Pink-eye broke out among the first horses shortly before Christmas; and here also the disease was referred to the introduction of some foreign ponies. The evidence, however, was not very clear; in fact, the persons concerned were not much disposed to afford information, and very little was ascertained beyond the fact that the disease existed, and that several ponies had died.

"Foreign ponies are charged with having introduced Pink-eye into Newcastle-upon-Tyne. A certain dealer got part of a cargo of Roumanian ponies which were shipped at Hamburgh and landed at Hull early in November; one of the ponies was discovered to be ill in the dealer's stables, but it was presumed that the animal had taken cold on the voyage, and no particular precautions were taken. Some of the ponies from the same cargo were sent to the stables of a dealer in Durham, and in both cases the disease began to spread among the horses in the stables.

"From the facts above stated, and from similar instances which have been reported, it is reasonable to conclude that Pink-eye is a contagious or infectious disorder, and it is further probable that an attack confers a certain amount of immunity against a second attack for a considerable time.

"Several veterinary surgeons have stated, as the result of their observations, that none of the animals which were attacked with Pink-eye last year in Newcastle have suffered in this outbreak; while in some establishments which altogether escaped last year, the greater number of the horses have suffered recently.

"There is some comfort to be gained from the impression which is entertained by the veterinary authorities in the North of England, that the disease is becoming less virulent, fewer animals are attacked, and the proportion of fatal cases is much reduced."

POISONING OF CATTLE BY PHOSPHORUS.

POISONING of the larger animals by phosphorus is such a rare occurrence, and its importance from a toxicological point of view is so great, that the following particulars of an occurrence of this kind, published in the *Wochenschrift für Thierheilkunde* some time ago, will be acceptable to those whom it concerns.

Merkt, a veterinary surgeon at Kempten, was called to the farm of an agriculturist of Darach, where eight of seventeen head of cattle, standing in one shed, had become unwell. The symptoms observed were: groaning, severe dyspnœa, loud respirations, frequent and very violent cough, and anorexia. The seven animals ultimately died. On examination of the bodies there were no indications of pulmonary hepatization, though considerable emphysema of the lungs was present, and in one case this was complicated with extensive subcutaneous emphysema, probably consecutive to vesicular rupture in these organs.

The other cattle did **not** perish, though three of them had aborted eight days previously.

Nothing to account for this loss could be discovered in the hygienic conditions of the cowshed or in the quality of the food. The animals had not been out of the building for three weeks, and were attended to by the owner himself. Merkt was, however, informed three days after he was called in, that two days before the cattle showed signs of illness, the drain or urine-pit (*stallgülle*) beneath the shed had been emptied to the bottom, and that some months before the contents of a barrel composed of matters from a lucifer-match manufactory had been thrown into this pit. The stable occupied by the cattle had been kept constantly closed while the contents of

the pit were being removed ; consequently, the animals were compelled to inhale the phosphorus vapours which were disengaged therein, and the presence of which was demonstrated during the night, by the phosphorescent light and the peculiar fumes of that substance.

As had been stated, the other cows recovered, but care was afterwards taken to remove the inmates of the stable when the pit had to be emptied.

Merkt still hesitated in attributing the disease among the cattle to this cause alone, until about six weeks later, when he was called to give his attention to cattle in a large and spacious stable belonging to a farmer of Waltenhofen.

Seventeen of twenty-five animals therein were ill, and six of them showed such severe symptoms of dyspnoea that asphyxia appeared imminent. The cows groaned, gasped for breath through the open mouth, got up and lay down incessantly, the tongue was protruded, the pulse very much accelerated, and there were well-marked symptoms of pulmonary emphysema ; the cough was very violent, there was complete anorexia, and in two of the animals subcutaneous emphysema.

Merkt, taught by his former experience, was not long in eliciting the information that, ten weeks previously, there had been thrown into the manure-heap attached to the stable, a lot of refuse from the lucifer-match manufactory at Kempten, and that this still contained much phosphorus. This dung-heap had been emptied once since then ; but at that time the cattle were at pasture, and only three which were in the stable at night became affected. These recovered without the cause of their illness having been suspected. The disease on the present occasion was due to the same circumstances, but it was more severe, owing to the fact that the cattle were kept in the stable, the openings into which were closed while the manure was being carted away. Two of the cattle had to be sacrificed, as a fatal termination in their case was not doubtful. The others were saved.

DEATH OF AN OFFICER FROM GLANDERS.

We learn from Lucknow of the death of Captain Logan, Bombay Infantry, as well as two natives, from Glanders, contracted from diseased horses employed in Egypt. It appears that on board the transport which conveyed him to and from Egypt there were horses and mules, and that he was constantly among these. Some time ago, we pointed out the very insufficient and defective condition of the army veterinary service in India (civil veterinary service there is none), and that contagious diseases were everywhere rampant and destructive, among these being Glanders. We also mentioned that a regiment of Bengal cavalry, which had been infected with that disease for a long time, was permitted to embark for Egypt, in all probability without its horses having been medically inspected ; that soon after arrival glandered horses were found in the ranks ; and that the disease had appeared among other horses, presumably from the infection being conveyed to them by that regiment. And now human beings have been doomed to a hideous death, through this gross carelessness or indifference. Surely the state of affairs in India with regard to animal diseases deserves investigation ! *Kismet* appears to be the word at present.

THE ROYAL AGRICULTURAL SOCIETY'S VETERINARY PRIZES.

It will be observed in the report of the meeting of this Society, which appears elsewhere, that the handsome prizes offered to recently-graduated veterinary surgeons have been withdrawn, the reason being, that they were not competed for as the Society hoped they would have been. The prizes,

three in number, were given annually, and in the seven years during which they were offered, only nineteen competitors, we are informed, entered the list. Every well-wisher of the profession must regret the apathy on the part of the younger members which has led to this result, as it will doubtless be considered a reflection upon the entire body, and lead to the belief that we are destitute of emulation and professional *esprit*.

The Society has behaved very generously, after the bad appreciation of its liberality, in deciding to give a silver and bronze medal to those students of the Royal Veterinary College who pass the best examination in cattle pathology at the final examination of the Royal College of Veterinary Surgeons.

At the competition which took place for these prizes on the 27th January, Mr. W. H. Edgar won the first prize (gold medal and £20), Mr. A. H. Archer, second prize (silver medal and £10), and Mr. J. B. Gresswell, third prize (bronze medal and £5).

Reviews.

UEBER ZUCHTLÄHME: NACH EIGENEN PATHOLOGISCH-HISTOLOGISCHEN UNTERSUCHUNGEN. Von Dr. LUDWIG V. THANHOFFER. (Budapest, 1882.)

The somewhat obscure equine disease which has been included in "Veterinary Sanitary Science and Police," under the designation of "Venereal Disease of Solipeds," and which is known in France as the "Maladie du Cöit," in Germany as the "Bösartige Chankerkrankheit," and in Arabia as "El Dourine," has for very many years been seriously engaging the attention of horse-breeders in Eastern Europe, and especially in Austria-Hungary. The symptoms and course of the malady we are already made acquainted with in the above work, but we had still much to learn with regard to its pathological anatomy.

The Austrian Government recently appointed a commission to study the disease, the members being chiefly veterinary surgeons, among whom were Professor Bela Tormay, director of the Budapest Veterinary School, and Professor Thanhoffer, of the same school. The report of this commission has just been issued in a quarto of sixty-six pages, with twelve coloured lithographs, and is chiefly made up of the elaborate and skilful investigations of Thanhoffer, whose researches were of a histopathological character, and extended from 1875 to the end of 1881. During this period he examined thirty-three cases of the disease, and after giving a short sketch of each during life, he enters into minute details as to the macro- and microscopical appearances he discovered after death. These details are full of interest as a really scientific inquiry, conducted with great ability, into the pathology of an obscure, transmissible, and nearly always fatal disease, spread only through infection during copulation.

Thanhoffer finds the most marked and characteristic lesions in the nervous system. Those consist of extreme hyperæmia of the spinal pia mater, thickening of the dura mater, and much increase in the quantity of arachnoideal secretion. But though in very advanced cases similar changes were noted in the cervical and cephalic regions, the lesions were constant and most accentuated in the lumbar and sacral portions

of the cord, which in shape was always asymmetrical, in both white and grey substance ; the latter also exhibiting blood extravasation, a yellowish tint (due to pigmentary degeneration of the cells), and at its terminal portion granular softening. The latter was observed in other parts, in advanced cases, in addition to breaking up of the commissures of the central canal.

The chief portion of the work is taken up with the histological observations, particularly of the nerve-cells, the white and grey substance of the cord, vessels, etc., and these prove that profound changes have taken place in them during the course of the malady.

Thanhoffer summarises his labours in concluding (p. 60) that this Zuchtlähme is, primarily, an affection of the spinal cord, consisting either in a central hæmorrhagic myelitis, a syringo-myelitis, or in more or less important changes involving the white substance. These lesions vary in degree, according to the duration of the malady ; while Thanhoffer is of opinion that the alterations noticed in the skin and generative organs are only consecutive to the disease in the spinal cord.

The coloured plates illustrating the work are excellent, and show in a startling manner the changes that take place in the cord.

Published under the authority of the Austrian Minister of Agriculture, this work forms a most important addition to the literature of a subject which does not appear to have come under the cognizance of British veterinary surgeons in any of our dominions.

ANATOMICAL TECHNOLOGY AS APPLIED TO THE DOMESTIC CAT : AN INTRODUCTION TO HUMAN, VETERINARY, AND COMPARATIVE ANATOMY. By B. G. WILDER, B.S., M.D., and S. H. GAGE, B.S. (New York and Chicago : A. S. Barnes and Co., 1882.)

This is a study of anatomy, based on the dissection of the cat, and is an admirable monograph in its way, complete to the minutest detail, scholarly in an unusual degree—for the subject, and in every respect worthy to take rank as a very advanced introduction to human, veterinary, or comparative anatomy. While intended as a guide-book for beginners in dissection, yet it goes far beyond these, not so much in what it absolutely contains, as in what it suggests in the method of teaching and demonstrating anatomy. What is, perhaps, the most notable feature in the work is the desire to introduce a new and improved anatomical nomenclature ; and there can be no doubt that in this direction there is room for much improvement. In many respects we think the attempt is attended with success, and though it requires a long time and much perseverance to effect any change in anatomical designations, yet improvement is needed, and here it begins and goes a long way.

The descriptions in the book are clear, concise, and couched in language so direct and simple that the student need have no hesitation in resorting to it, in order to be initiated into this branch of science. The woodcuts, too, are clearly and carefully drawn, and appear to be very accurate. As a mere anatomy of the cat, this book is much ahead of any other that has been published on the subject ; and as an introduction and guide-book to the study of anatomy, it affords us much pleasure to recommend it to every student who is about to commence dissection.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

SPECIAL MEETING OF COUNCIL HELD JANUARY 19th, 1883.

GEO. FLEMING, Esq., President, in the chair.

Present:—General Sir F. Fitzwygram ; Messrs: Harpley, Dray, Cartledge, Cox, Wragg.

The SECRETARY read the notice convening the meeting.

On the motion of Mr. DRAY, seconded by Mr. WRAGG, the minutes were taken as read.

The SECRETARY announced that the following members of the Council had sent letters regretting their inability to attend the meeting :—Messrs. Simcocks, Taylor, Robertson, and Cartwright.

Alteration of Bye-law.

Mr. DRAY proposed that the alteration in one of the bye-laws, proposed by Professor Walley at the last meeting and carried, be confirmed.

Mr. WRAGG seconded the motion.

General Sir FREDERICK FITZWYGRAM moved as an amendment, "That the alteration be not confirmed." He considered that it would be a step in the wrong direction altogether. Some years ago the Council compelled all students to attend a whole course of lectures and examinations. Since then he himself had proposed to relax that rule, and to allow qualified men to prove that they were qualified, without attending the lectures. Any further relaxation of the rule would, in his opinion, be injurious to the best interests of the College and to the qualifications of the students.

The PRESIDENT said that, according to the unaltered bye-law, any gentleman who was a graduate of a foreign or Colonial school was admitted to the first and second year's examinations without attendance on lectures ; the alteration would exempt them from all attendance on lectures and from the examinations at the end of those years. They would, however, have to study and to pass in Class C. He (the President) supported the alteration, because he thought it unfair to a gentleman who had graduated in a foreign or Colonial school to come up for examination in the A. and B. subjects. He had also in his mind that distinguished members of the profession holding foreign or Colonial diplomas might come up for examination, and it would be very hard upon them to have to be examined in such very elementary subjects.

The amendment not being seconded, the resolution was put and carried, and the proceedings of the Council then terminated.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of this Association was held at the Blackfriars Hotel, Manchester, on December 14th, at six p.m.

The following thirty-five members and visitors were present :—Members—Mr. Alexander Lawson, president, in the chair ; Messrs. Peter Taylor, Greaves, Whittle, Marshall, Fergusson, Darwell, Dacre, Thos. Briggs, Locke, Hopkin, Challinor, Litt, W. A. Taylor, A. W. Briggs, Wm. Leather, Jno. Lawson, Bunnell, Bridge, Faulkner, Ingram, Thomas, Bottomley, Beard, Michaelis, Leach, Woods, jun., Hart, H. C. Harrison, and Wolstenholme. Visitors—Messrs. H. H. Harrison, Bain, Crawford, Wilson, and Packman.

The minutes of the last meeting were read and confirmed, and the letters apologising for non-attendance were presented.

Mr. W. A. TAYLOR proposed, and Mr. A. W. BRIGGS seconded, "That Mr. H. H. Harrison, M.R.C.V.S., Manchester, be a member of our association." Carried unanimously.

The SECRETARY proposed, and Mr. BRIDGE seconded, "That Mr. Frank Bottomley, M.R.C.V.S., Oldham, be a member of this society." Carried unanimously.

Mr. WM. LEATHER nominated Mr. Bain, and the SECRETARY nominated Mr. Davidson, for membership.

The TREASURER then read his annual report, which shows that there is a small balance in our favour.

Mr. WM. LEATHER gave notice that at the next meeting he would move an amendment to Rule 2, so that it should fix the dates of our meetings more definitely.

Mr. WHITTLE also gave notice that he would move that the annual subscription be raised to one guinea.

Mr. FAULKNER proposed, and Mr. WHITTLE seconded, that Messrs. Peter and W. A. Taylor be auditors for the ensuing year. Carried unanimously.

Mr. WHITTLE proposed, and Mr. GREAVES seconded, that a vote of thanks be given to Mr. Alexander Lawson, the retiring President, for the admirable manner in which he has fulfilled the duties devolving upon him. Carried unanimously.

Mr. LAWSON briefly and suitably acknowledged.

Mr. PETER TAYLOR proposed, and the PRESIDENT seconded, that a vote of thanks be given to the Treasurer and Secretary for ably fulfilling the duties of their respective offices. Carried unanimously.

After the last resolution had been acknowledged, Mr. WHITTLE proposed that Mr. Wm. Woods, of Wigan, be president for ensuing year.

This was seconded by Mr. W. A. TAYLOR, and carried unanimously.

Mr. FAULKNER declined re-election as Treasurer, and Mr. PETER TAYLOR proposed that Mr. Thos. Briggs be treasurer, seconded by Mr. LOCKE. Carried unanimously.

Mr. PETER TAYLOR proposed, and Mr. LOCKE seconded, that Mr. Wolstenholme be re-elected secretary. Carried unanimously.

Messrs. Jno. Lawson and E. Faulkner were elected vice-presidents, with Mr. Alexander Lawson *ex-officio*.

A discussion followed on the question of the "Existing Practitioners," after which Mr. TEDBAR HOPKIN read an excellent paper on "The Buying and Selling of Horses, and their Examination as to Soundness."

The Buying and Selling of Horses, and their Examination as to Soundness.

Gentlemen,—After receiving a request from the Secretary to read a paper on Soundness, I naturally turned my thoughts to the subject, and as I drew the mental picture of the examination of a horse, with buyer and seller both standing by, awaiting the verdict, I resolved to treat the subject in its three-fold aspect; hence the title of the paper, "Buying and Selling of Horses, and their Examination as to Soundness." Poets sing of the ever varying and changing face of nature. Lawyers tell you to count on (and advisedly so) the glorious uncertainty of the law. Man, too, is ever changing from the cradle to the grave, physically and mentally; time is working its silent changes.

It does not require a very protracted experience, for any one with ordinary aptitude, to become convinced of the changeable and uncertain nature of the equine species. April weather in its most capricious forms is not more change-

able and uncertain than are some of our subjects ; hence the disappointment and chagrin that we often see manifested when people concerned are not philosophical enough to bow to the inevitable. But adieu to moralizing, and for a time let us consider the general purchasers of horses, and particularly those of our own district. For the sake of convenience we shall divide them into three classes. In the first I put those who are willing to pay full value for what they require, whether it be high or low, and will yield, say, twenty per cent. of the whole number of purchasers.

2nd. Those who are willing to pay a moderate price, but expect the choicest article ; take these as representing, say, thirty per cent. of the whole.

3rd. Those who want the best article that can be got at the lowest price ; half the buyers, or, fifty per cent., may be included in this class.

If seasoned, tried, and proved animals are required for either hunting, harness, or business purposes, the first class ought to get them, being willing to pay for them. Unfortunately for the comfort of all concerned, the first class is only small,—too small, in fact, to create a demand great enough to pay the vendors to keep a stock affording reasonable choice. A Lancashire dealer would tell you it is an impossibility to buy such animals—that the London and South Markets are so much better than ours, that the best horses are out of his reach ; this is because the majority of customers are not willing to pay what they cost to produce, with a reasonable profit to cover risk and trouble. The unsatisfactory state of our staple industry tends to diminish rather than increase good-priced buyers. Hacks and harness horses trained and seasoned, are more easily produced than clever hunters, and yet we find men supplying the last-named class of horses exclusively and successfully, both in a pecuniary sense and otherwise, cleverness and manners in a hunter are a marketable commodity.

At a sale of hunters last April, twenty-eight horses realized £4673 10s., giving an average of £167 per horse, although nine were sold under the £100 each. The highest price given was £409 10s. ; and I have no hesitation in saying that two out of every three would have been rejected by Manchester veterinary surgeons as unsound. These were regarded as high prices, but I doubt if any one with four or five thousand pounds would increase his capital materially if he bought four-year-olds, made them two seasons, paid all expenses of keep, men's wages, run risks of illness and accident, and then sold them as well as the stud here alluded to,—but he has had his sport, one says. Gay sport, riding a raw four-year-old to hounds and risking your own neck and limbs, as well as the animal's. Then, again, hunting buyers belonging to the first class are not nearly so squeamish about soundness as some in the second class, to which reference will be made shortly.

Roaring, blindness (partial or complete), navicular disease, and thick tendons are objected to. I maintain that if customers were willing to pay proportionately for the other classes of horses, making and seasoning, the law of supply and demand would complete it ; but in reality we have no attempt made to supply seasoned horses for either harness or trade purposes.

In Africa horses that have become acclimatised, or as they term it "salted," are considerably enhanced in value. Buyers of the first class have accepted a similar fact here, and the sooner all parties concerned will embrace it the better ; but at present I find no one who views the making and seasoning of harness-horses as an occupation sufficiently remunerative to be worth the following—at any rate in our district.

Our second class is, perhaps of all, the most difficult to deal with. In it I should include the owners of horses in and around Manchester who know little or nothing about them, only keep, and often have but just sufficient accommodation for, the number they require. These men will tell you the exact price they intend to give, and often do give the price they fix, irrespec-

tive of the real value; will pay the veterinary surgeon to examine it, and then, expect to have it for perpetual use—whether little or much, depending upon, caprice or circumstances for years to come.

Should anything turn up to interfere, as it generally does, and prevent the realization of this expectation, then either the vendor has swindled, or the veterinary surgeon should not have passed it, or the stupid coachman has done something to cause it. Anything and everything is blamed but the right cause, the unreasonableness of the owner who thinks the fact of his having given £60, £80, or £100, ought to insure his having an animal to use *ad libitum* like a machine; because he has not got this, he will take or threaten legal proceedings; failing this, sell the brute for what he can get, anathematise all who have had any connection either near or remote with the purchase; change his dealer, or veterinary surgeon, or man, or all; and should an opportunity be offered for any explanation, he will quote the case of another horse that, either by force of circumstances or as the exception to the general rule, has stood proof against all usage reasonable and otherwise; a vow is then registered never to buy another horse without trial and warranty (two things most unfair and unjust, with a tendency to produce roguery and litigation *ad nauseam*), or the horses are voted such a nuisance and the source of so much trouble and annoyance that, if circumstances will admit, they are sold, and hiring takes the place of ownership. The sooner such men learn that four-year-old horses fresh from the country require a long time of careful, gentle work on either country roads or soft ground, and that 75 per cent. will prove failures if this is not done; even with care a good number will not be entirely satisfactory. Illness, terminating in unsoundness or death, may come about notwithstanding every attention. These facts must surely convince thoughtful buyers that they ought to be willing to run these risks, or pay some one else for incurring them.

Older horses are at times in the market and sold at the price they very likely were worth as four-year-olds. These are exceptional cases, and the supply is not equal to the demand.

People willing to give nineteen shillings for one pound are always plentiful, whilst acceptors of the same are equally scarce.

I have tried to pourtray here customers we all know only too well. Very often arbitrary, unreasonable men, good payers, but exacting, successful mercantile men, conducting their business with mathematical precision, and trying to do the same with their horses. I confess I used to stand somewhat in awe of them; but latterly have been more out-spoken and run the risk of offending them, by plainly telling them that if they keep horses, they must run the risk, and bear the loss when it arises. Some clients are lost; but when one goes another generally comes, and the peace of mind is worth something. The third class are less trouble and anxiety to the veterinary surgeon than either the first or second. I should include in this thorough horsemen, with a natural aptitude or liking for horses. They are born horsemen. I don't use this in any disparaging sense, because it is thoroughly compatible with the character of true gentlemen.

These men know fully as well as we do what wears out horses' legs and produces the ills horses are heir to. Disease and death or permanent unsoundness are regarded as the ordinary risks of ownership, and often spoken about in a half-pagan sort of style as a piece of bad luck; there is no reason why some of these should not belong to our first class, providing their means admit of it; but the generality of them you will, I think, be inclined to agree with me, and place in the third class. Whilst some few men believe good horses are never sold cheap, a far greater number are of the opinion that high-priced horses are not always good ones, and that often the best are sold at ridiculously low prices, as they may have proved by experience.

Owners at times, through impatience or defective knowledge, sacrifice good animals. It may be the horse has been bought for some particular purpose, proved unsuitable; another man judges his capabilities more accurately, and uses him for work for which he is adapted. The practical soundness is here more sought after than absolute soundness; less is said about trials, warranties, and receipts. "Here's your money; give me the horse," is more the type of man, and for my part I wish there were more of them. Horse-buyers with extended experience ought in time to become philosophical enough to admit that the purchasing of horses is somewhat of a lottery with more blanks than prizes, and must remain such from the naturally constituted order of things, whilst judges are fallible and horses scarcely less fickle than women, and I think they ought to be taken like wives, for better or worse; although at times they may prove like the man's wife, all worse and no better.

The Seller.

Compassion is not often bestowed on any one having a horse to sell, and yet there are to some natures no more trying or annoying ordeals to go through, and, we must admit, it often proves unsatisfactory. This opens a wide field. I once heard a dealer say "that the horse was never yet foaled for which there was not a buyer;" much in the same way as soldiers believe "that every bullet has its billet."

Some horses take very circuitous routes to get to theirs. How often we have seen an animal change hands time after time, until at last he finds his billet, and we are told by his owner he is the best animal in the world, never had his equal for the work he requires him to do. Now, for my part, as I have said before, I should be glad to see the selling of a horse to be final—no appeal, as the auctioneers put it—at the fall of the hammer to be the property of the purchaser, with all faults and errors of description, if any.

SELLERS of horses may also be divided into three classes—1st, the breeder; 2nd, the dealer; 3rd, the miscellaneous or private individual. Considering the haphazard style in which animals are bred, the wonder is we get as many good ones as we do. The science of breeding, for it is a science, in spite of its neglected state, was perhaps better understood and more carefully studied by Darwin than almost by any man that ever lived. It was my good fortune to spend some time in the company of a Scotch gentleman, who had most carefully studied and practised the breeding of Clydesdale cart-horses on the lines laid down by Darwin, and his success was beyond dispute. Our pure-bred stocks never indulge in such freaks as we see in promiscuous crossers. On the other hand, it is necessary that great care be taken, not to sacrifice to purity of breed, soundness and health, and the baneful influences of in-and-in breeding if pushed too far, are too well known to need notice.

Like produces like—but in breeding the most unlikely are brought together. and people are foolish enough to expect the good properties only to be transmitted to the offspring. Unsoundness may, or may not be hereditary, and sufficient care is not used in selecting animals for breeding purposes. If unsoundness be present it should be of the non-hereditary character. Unfortunately the loss entailed by the breaking of this natural law does not always fall on the parties who are the cause of its being violated. The young horse will probably be sold before the constitutional defect develops itself; it may be designedly sold because of the known tendency to unsoundness, or it may remain in the hands of the breeder long enough to teach him a practical lesson.

One of the duties of the wealthy landowners or the Government ought to

be the providing sires of known character and soundness in country districts, insisting at the same time that all mares put to these sires are free from hereditary unsoundness. Some few years back there was a rumour that the Prince of Wales, and others in high position, would take this matter up, but it appears to have given place to music, and whilst fully admitting the refining, elevating, and purifying tendency of the latter, the utility of the former cannot be gainsaid.

In breeding from pure strains the sire and dam are alike, and then like gets like. I contend we ought to breed our hunters from hunting mares by steeplechase horses, not out of cart-mares by broken-down platers, as our English farmers try to do. You rarely or never see a cart-mare in Ireland, where our best hunters come from. Some weeks back I saw a most remarkable instance of breeding back. I went with a client to see with a view to purchase, some cart colts on a farm in Yorkshire; one colt struck us as being exceptionally big and powerful, whilst another of the same age running with it, was better looking, but only half the size. When told they were both by the same horse, we expressed a wish to see the dams, and were shown a cob 14-3, that the farmer drove in his gig. This was the dam of the bouncing cart colt we had seen, big as an elephant, "a regular Jumbo," whilst the small colt was out of a sixteen hands black mare, as I said before, both by the same sire; the thing was repeated in two colts a year younger. The only solution I could get was, the dam of the cob was a very big cart-mare, so her colts were evidently breeding back. If you mix heterogenous masses you will get uncertainty as your product. When private individuals buy from breeders they are often victimised. Our town people are in the country for a holiday, and imagine it a good opportunity to buy a horse first hand. The farmer has heard and knows that horses are sold at big prices. Why should he not get them as well as the dealer? he very likely believes that the three-year-old out of Darling, by a nondescript horse covered with medals, will make as fine a horse as ever stepped; all his faults and failings are attributed to want of grooming and trimming up. If Mr. So-and-so, the dealer, only had him, what he would make of him! The probabilities are, if shown to a dealer and asked for his opinion, it would not be very flattering. In due course the new purchase is brought home, and you may be invited to look at it. You are then introduced to what often becomes a familiar acquaintance, and very likely before it terminates, both you and the owner will most heartily wish you had never seen the brute. Years gone by our best farmers bred or bought good young horses, rode them to hounds, and after making sold them to their landlords or the neighbouring gentry. But things have changed. Very few are in a position to do this now; high price of land and rents, bad seasons and keen competition have forced them to devote their energies to the branches of their calling yielding a quicker and safer return. Breeding of the better class of light horses in England is declining. Good sires are scarce, and what are left incline more to the promiscuous type. When the owners of this class of animals are driven to sell to the dealers, the latter will not buy until the animals get to a proper age, and then for purposes for which they are adapted, and at reasonable prices. This brings us to our second class.

Dealers in Horses.

Horse-dealers are not looked upon with favour by the British public; that there are many of their number arrant rogues and utterly devoid of principle any one with an intimate knowledge of them will not for a moment deny; but to brand them all as such is grossly unjust. Considering the changeableness and uncertainty of the article they traffic in, I am forced to the conclusion

that many of them exhibit more straightforwardness and have more uprightness and fairness in the composition of their characters than many so-called gentlemen or business-men show when placed in similar positions. Some men possessing a fair and unsullied reputation in daily life and business, when a horse or a horse-dealer is concerned seem to lose all this, are unfair, and even dishonourable in many cases, and judge other people by their own standard. I hold, and have long held, that, as a class, dealers in horses are not fairly dealt with ; it is a case, no doubt, where the whole suffer for the wrong-doing of a portion. Let a man, who knows a horse well, go to a fair, buy six or seven horses in a day, bring them home, have a quiet look next morning, will they all be satisfactory? But let him go a step further, and retail them out to the average Manchester buyer, with his half-dozen visits, his trials in double and single-harness in his own conveyance, by the side of his old horse, in saddle, his wife's whims and fancies, likes and dislikes, his friend's opinion, his veterinary surgeon's examination, special warranties ; add to this, risk of sickness, lameness, imperfections of temper, cost of keep, travelling expenses, wages, rent, taxes, annoyance, humbug, etc. The profit, if any, will it be a fair recompense for all his trouble and labour? I fear not, particularly if we judge from results as seen in actual life, for the majority of them are not able to pay their way and end in bankruptcy. A dealer is entitled to a profit on his good purchases that will cover loss on bad ones, with expenses ; and if some of our buyers were driven into the open market, they would learn lessons that would make them more tolerant and reasonable, I believe.

A few years ago we had half-a-dozen respectable dealers in the town—where are they now? If a dealer's horse dies or goes lame, who cares or sympathises with him? but if a gentleman's new purchase dies or goes lame, that is a very different matter. Some one must hear about that, for surely it is the dealer's fault ; he must bear the loss (as well as his own, which is often more serious). Arguments are used, logical and illogical, law is threatened ; should all fail, he is stigmatised as scoundrel and cheat, and never another horse to be bought from him for the period at least of one natural life, by either the suffering innocent or his friends, if he can prevent it.

Our third class is a large one. Their number is legion. People who are dead, or whose grandmother or great-grandmother, or fifty-second cousin is dead, or there has been a death in the family ; people having no further use—giving up keeping (till they begin again), going abroad, property of an officer ordered on foreign service, are some of the reasons given for selling worthless, worn-out, unsound animals, or unsuitable for the purpose for which they were bought by individuals of doubtful veracity, and it is astonishing the elasticity of some people's consciences when horses are concerned. Amateur dealers, people who buy a horse to make a pound or two, and as a recommendation to intending purchasers assure them they are not horse-dealers. No, perhaps not, but bigger rogues by far, nevertheless. Nothing sounds more priggish to me than when any one has a horse to sell, assuring people they are not dealers ; in such cases, caution is the safest policy.

Gentlemen, though often anxious not to buy from dealers, prefer to sell to them ; they have done with the transaction then ; if the dealer is taken in it is his own look out. Most of the roguery in the selling of horses is in this third class and with screw dealers. No doubt much of the odium that should rest here is cast on the fair and honest dealer.

But we now come to the part of the subject with which we are most intimately associated—*The examination of horses as to soundness*. The pleasantest part, and at the same time often the most unpleasant part of our calling—breaking the monotony of every-day practice and round of case-seeing, with trips to far-off places and scenes : at times a pleasant duty, at

others a most thankless office—one demanding great discrimination, cool judgment, and thorough impartiality. No college training can efficiently equip a veterinary surgeon for the satisfactory discharge of this duty. For my own part, I would much sooner trust to the opinion of a practical judge of soundness, minus a college training, than the most scientific collegiate without the practical training.

A veterinary surgeon is often called upon to decide between absolute soundness and practical soundness, two widely different states. You will find dealers and experienced horsemen good judges of the one and strangely deficient in the other, the one being the outcome of experience, the other requiring in addition a scientific training, and until a veterinary surgeon is master of both, or so far master as fallible man can become, he is not a competent person to give an opinion on the soundness or unsoundness of a horse. You will all admit, I think, that the major portion of work performed by horses is done by those not absolutely sound; granting this, you must also admit that if we pass none, or permit our clients to buy none but absolutely sound animals, their purchases will be few and far between, or very young, and often, when made, useless animals, from other causes besides soundness, for few horses pass through to the seasoned stage without developing some unsoundness. A six-year-old may be absolutely sound, but the chances are he is either too lazy or bad-tempered to permit of his being useful in other respects; thus, if we are to be really of service to our clients, we ought to be able to say whether a horse having certain defects is still capable of satisfactorily doing the work for which he is required. Our certificates may state that a horse is unsound, but still, for all that, we think he will do the work our client requires him for, or that the said unsoundness will not interfere with his usefulness. Such a thing as passing an unsound horse as sound would not knowingly be done by any honest veterinary surgeon; but if there be a dishonest one, who has not self-respect sufficient, or regard for his profession, I blush for him, and am thankful for the law that can be used against him; and whilst we are sorry if any honourable member of our profession should ever suffer from this law, let us not forget that it is a useful instrument of terror to evil-doers. On the other hand, I am equally sure that many good, honest, practically sound animals have been rejected by us, unfairly so, I think. If a man is so nervous of consequences that he dare not pass a horse, I maintain he is not fit to follow that particular part of his calling; besides the injustice of the thing, our first duty is of course to our clients, but we also are surely honest enough to admit that we have no right to wrong the other party by rejecting a horse that does not merit that rejection. I am a firm believer in doing what I believe to be right, and bearing the consequences. If I candidly believed that an unsound horse would suit my client, and advised the purchase of the same knowing of the unsoundness, should after circumstances prove me to be wrong it would not trouble me to acknowledge my error in judgment. Have you never, on the other hand, seen horses you have rejected doing similar work for other people for years afterwards? A case that was brought to my notice only last week, in which an animal was rejected four years ago, but in spite of veterinary surgeon's unfavourable opinion as to fore-legs, was bought, and gave every satisfaction for that length of time; it was then sold the week after, condemned by another veterinary surgeon for spavin, when it was lame from tight shoeing, re-bought at a low price, and veterinary surgeons in general condemned as humbugs.

It is not only dealers but private horse-owners in and about Manchester who are becoming adverse to allowing a veterinary surgeon to examine a horse they may have on sale, even if they believe it to be sound; they say he is sure to

find something. Thus far we have spoken generally of the question of soundness and unsoundness. Before particularizing as to unsoundness we should note that it is necessary often not only to examine the horse, but also consider the other two parties concerned, the buyer and the seller. Is he examination for one of our own clients, whose character and requirements we are well acquainted with? For a party we know to be fond of law, then be careful to strictly observe the law, and no more, and let him reap the benefit of his unenviable disposition for Shylock's, "I verily hate." Should the seller's character or reputation be doubtful, be careful, but do not condemn the horse for the man, for even a rogue deserves justice, and you are not just if you condemn a horse on account of his owner. Now for particularizing; take first a general survey; note the class, appearance, and anything that may strike the eye. In examinations I have come to the conclusion that the truth of the old saying, "What cannot speak cannot lie," will only bear a literal interpretation: if it cannot speak a lie it may denote one. Our Irish friends, in particular, are so expert at cultivating the artificial growth of teeth that it is always safest to say, instead of a horse is such an age, that his mouth denotes such an age. Then, again, treatment with early and late foaling does materially interfere with the dentition, and we know short-horn cattle will have a full month at three and a half, whilst with rough Welsh or Irish it is five before they get it. Another matter with the teeth not often done, but under certain circumstances ought not to be overlooked, is the examination of the molars for irregularities or decay. A horse may and often has a five-year-old mouth when only four. And if only four years old his legs will not stand hard work on our roads and paved streets. The reference already made to the unwillingness of our clients to pay for a seasoned animal, or go to the necessary trouble and expense required to season their own, give rise to much of the so-called trouble of horse buyers. Horses in the country have an advantage over those in the towns, because often after overwork they get long rests out at grass, where their legs and feet are cooled and renewed. Bent legs, swollen joints, ossific deposits are often due to overwork on artificial roads before the tissues are set and hardened; I also hold that no horse should be called on to severely exert itself unless in hard condition. Ligaments, tendons, and muscles, are more liable to sprains when the animal is out of condition than when the horse is what we term "fit."

Lameness may be temporary and of trifling importance, or permanent, and every lame horse may not of necessity be rejected entirely; if caused by defective shoeing, or a slip, knock, or twist, it may only be transient.

Shoulder lameness, navicular disease, ringbone, hip joint, spinal, and some forms of hock lameness justify total rejection.

Supposing an animal to have certain defects which do not cause it to go lame at the time of examination, when are we justified in advising our clients to run the risk of purchasing such an animal? because we are constantly called upon to do this, whether we like it or not; and it is here where I think the Manchester veterinary surgeon has earned a notoriety in rejecting practically sound animals rather than passing unsound ones. In Ireland two-thirds of those rejected in Manchester as unsound would be passed as sound, and in other portions of the United Kingdom a large percentage of our rejects would be passed. In the matter of feet I have known a horse, where they have been allowed to grow long, a shoe lost, and one foot broken, to be rejected by a veterinary surgeon as having odd feet; as most of you will have noticed after a horse has been for some weeks at grass, the horn grown during this period has a ringy appearance: this has been condemned as produced by Laminitis; the smith's rasp

judiciously applied would have caused the same party very likely to praise them as the best of feet.

I should not reject a hunter with corns unless very bad, whilst in town horses they often seriously interfere with an animal's usefulness. Splint lameness, again, is generally only of a temporary character, though it may, even when not interfering with the tendons, prove a source of annoyance where hard roads have to be considered.

Sidebones require careful consideration. Whilst great numbers of cart-horses work well and go sound with them, there are others in which they increase in size and produce lameness : light horses affected with them I should decidedly reject.

In the hind leg the hock affords scope for great diversity of opinion. I may, perhaps, startle some of you when I tell you I believe more horses go sound with spavins than go unsound from them. Big and coarse hocks rarely wear unsound. Little round hocks, and where one is larger than the other, are to be regarded with more suspicion, though cases are not difficult to find where odd ones have proved a good pair.

Some members of the profession may broaden their views on the hock question and not in any way jeopardise their position. I call to mind two cases where I rejected hocks : the one has been a fire-engine horse for years, and the other carries a very hard rider in Sir Watkin's district—perfectly sound in spite of the severest strain.

Curbs depend on conformation ; hard, cool curbs on good-shaped hocks may be only eyesores. My opinion with regard to bog spavin and thoroughpin has been contrary to fact in many an instance. In three and four-year olds these may and often do disappear in later years, particularly if rested or fairly worked. I do not now regard them as incurable in all cases.

Sesamoiditis, too, has played me false both ways—it has yielded to treatment when I thought it incurable, and not yielded when I thought it ought.

Rheumatism might escape detection, though there is an appearance if the lameness be not present, not easily described, but recognisable to one who has treated such cases.

Shivering and spinal affections might escape the notice of a young practitioner once or twice, but not more I think.

The respiratory organs are often a tax upon us. Whistlers in a storm may not be heard, even when you are not hard of hearing ; and to be able to ride your own as well as see them ridden is not a disadvantage, particularly if the animal is fit to go. Riding schools are not fair places to test a high-couraged horse's wind in. Again, Whistling is not always constant, and if a horse does not make a noise when we examine him, and is proved to be a whistler afterwards, I should certainly maintain my position, particularly if there was no grunt ; or, on the other hand, a horse may grunt and still be sound in his wind.

Does Indigestion, Worms, or Diabetes constitute unsoundness ? Skin Diseases : I have had several cases lately where horses have broken out with ringworms and horse-pox (I know no other term for it) soon after examination, much to the annoyance of myself and client, but I cannot see how I could help it. One case, with an unclipped horse, directly he was clipped, showed five ringworms.

To pass a horse with heart disease would be an unpleasant matter, but might easily be done ; one thing I have noted in two cases lately under observation, and think worth remembering, is palor of the visible mucous membranes. Blemishes and vices may or may not constitute unsoundness. Broken knee or knees should always be noted, though not necessarily cause rejection. The detection of vices is more difficult, although I should without hesitation reject either a crib-biter or wind-sucker if I detected it. On the

other hand, I should as stoutly hold that a man might pass either of these without detecting them, and not be guilty of culpable negligence. It is always advisable to ask the question, "Is this animal a crib-biter or a wind-sucker?" and if the vendor answered in the negative, I should hold that as sufficient to exonerate us from blame. The worn or rounded outer margin of the upper incisors is not a positive indication of cribbing, as it may be produced in other ways, though it is highly suggestive.

When any doubt exists as to the soundness of the eyes, let me recommend the use of a pocket lens, and a light in a dark stable; by a very simple arrangement the light is thrown on to the posterior part of the ante-chamber, when cataract or any opacity of the lens is at once detected.

In testing or trying a horse in our examinations, we ought to be careful and (particularly so if likely to reject the animal) not to injure or increase lameness if present. It is quite enough to reject a man's horse without damaging it into the bargain.

In conclusion, gentlemen, whilst I frankly own to those who are anxious for knowledge that there is little or nothing new in this desultory paper, yet the united, publicly expressed, and confirmed views must tend to strengthen and give us confidence in expressing our opinions. "Whilst to err is human, and forgive, divine," be assured we shall, if long in practice, afford ocular demonstration of the first; let us hope our clients may possess the latter attribute, and unanimously exercise it towards us.

The subject was listened to with great interest, and its discussion postponed until the next ordinary meeting.

JNO. B. WOLSTENHOLME, *Secretary.*

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE forty-eighth meeting of members of the above Association took place on Friday, 26th ult., at the Stork Hotel, Birmingham; Captain Russell, President of the Association, in the chair. There were also present, members: Messrs. F. Blakeway (Treasurer), R. C. Trigger (Hon. Secretary), L. C. Tipper, A. Hodgkins, O. Hills, Geo. Smith, F. W. Wragg, H. D. Pritchard, H. Olver, H. M. Stanley, F. W. Barling, D. Aiken, Augustus Bowles, Robert H. Cartwright, A. C. Robertson, William Carless, Edward Meek, A. Over, H. J. Cartwright, Thomas Greaves, Harry B. Lutterworth, H. R. Perrins, A. B. Proctor, Edward Stanley, E. Beddard, W. G. Barling;—visitors: Messrs. J. S. Barber, Rugby; Thos. Horton, Birmingham; Peter Taylor, Manchester; and H. Turner. The minutes of last meeting having been read and confirmed, the treasurer read his annual statement of accounts, which showed a balance in favour of the Association of £128 os. 8d. The following gentlemen were then elected members of the Association: Mr. R. Verney, of Stratford-on-Avon, and Mr. J. S. Barber, of Rugby.

The meeting then proceeded to the election of officers for the ensuing year. Mr. William Carless, of Stafford, was elected President, Mr. L. C. Tipper was elected Secretary, Mr. Blakeway re-elected Treasurer, and Messrs. H. Pritchard (Wolverhampton), W. G. Barling (Ross), and Captain Russell (the retiring president), Vice-presidents. After some conversation it was resolved that Mr. Olver be elected to represent the Association as a candidate at the next election for members of the Council. A discussion then took place as to the right of this society to elect a Life Governor to represent them on the Veterinary Benevolent and Defence Association (in place of Mr. Carter, deceased), without payment of further subscription, and as to whether the term "Life Governor" representing a society applied to the life of the individual selected, or to the life or existence of the society. Mr. Greaves, Treasurer

of the Benevolent and Defence Association, was clearly of opinion that rule applied to the life of gentlemen selected only; on the other hand, Mr. Peter Taylor, president of the same association, believed that the Life Governorship appertained to the life or existence of the association paying the subscription.

The latter gentleman having kindly announced that a meeting of the Benevolent and Defence Association should shortly be held, and the matter be definitely settled,

It was resolved that the further consideration of the matter be deferred to next meeting.

Fleming Testimonial Fund—£46 2s. od. has been subscribed by members of this Association, and kindly collected by Mr. E. Stanley, of Warwick.

The discussion on Mr. Over's paper on soundness in horses was then resumed.

Mr. OLVER said, so long as by law soundness meant perfection, they could never say that any horse was, in a legal sense, actually sound. For himself, in writing out certificates, he generally said if the horse was to all intents and purposes sound, with the exception of some slight defect which would not be likely to interfere in any way with its capabilities of performing the work it was required for, that the horse was sound with the exception of such and such defect which might or might not interfere with its practical usefulness.

Mr. BLAKEWAY said that they might discuss the question from now till next year without coming to any definite decision upon it. Their perplexity on the subject was not to be wondered at, when they saw some of the most learned legal authorities in the land differ as much as they did on the question of what constituted soundness in horses. Judges on the bench insisted that crib-biting was not unsoundness, but only a habit. Now, Mr. Olver said everything that impeded usefulness in a horse was unsoundness; therefore, on that question he and the judges were at issue. Then, as to the splints. If a veterinary surgeon passed a horse with splints without qualifying his certificate—which was frequently the case—although he might believe that such defect would not interfere with the working capabilities of the horse, some client might come to him at any moment and say the horse was unsound, and the surgeon ought not to have passed him. It was a very vexed question to decide upon. He thought the best thing for them to do was to qualify their certificates and give their decision as their opinion only.

Mr. GREAVES also believed that it was inevitable that a great number of different opinions should exist on the question. However experienced a man might be, he could not help occasionally differing with other experts as to whether a horse was sound or not. He was intimately acquainted with one of the first men in Manchester; that was a man who had a greater number of horses brought him to examine than any other man in the town. Another gentleman he knew in Liverpool, who had also had very great experience in the same direction, and he had heard both of them say, "I have rejected many and many a horse I had no business to reject; I rejected them because perhaps they had enlarged hocks. I have watched some of the horses thus rejected in the hunting-field season after season, and they appeared to be as sound as possible." Now, he (the speaker) thought veterinary surgeons might do injury to their clients by being over-particular. They might prevent a client becoming possessed of a valuable, sound horse by rejecting a horse that was quite capable of doing all the work that might to be required of it. It was quite necessary that they should take into account the age of the horse, and whether he was thoroughly seasoned or not, for at one period it would be dangerous to pass a horse with defects, which at other periods would

be of little or no consequence. He was of the same opinion as the other speakers, as to advisability of qualifying their certificates; such a horse they might say was sound, with the exception of a splint or curb, which might, or might not interfere with his work. If they thus qualified their certificates they could not do wrong.

Mr. H. J. CARTWRIGHT said, if a horse had splints he should always make an observation to that effect. He would never pass a horse with side-bones as a sound horse, or a crib-biter without drawing attention, and remarking on the defect. If a horse had enlarged hocks he should pass him without observation as sound, if enlargement did not interfere with his action. With regard to the present state of the law, he thought it would be very difficult to alter it so as to meet their case. He did not see how it was to be done.

Mr. PERRINS asked Mr. Cartwright what he would do in case a client came to him and said, "I want you to tell me whether this horse is sound or unsound. I am sufficient judge of its merits and capabilities for work. I only ask for a professional opinion as to its complete soundness, or otherwise."

Mr. CARTWRIGHT said in that case he should say sound or unsound as the case might be. If unsound he should state nature of the defect or defects, and if asked should give his opinion as to whether the defects would interfere with the horse's usefulness.

Mr. PERRINS, continuing his remarks, said there was one question which deserved attention even more, perhaps, than that as to the unsoundness of horses, viz., professional charges for examination. He had heard that some veterinary surgeons examined horses for five shillings. As such great responsibility was laid on the shoulders of veterinary surgeons, they ought to be adequately compensated for the risks they ran. (Hear, hear.)

Mr. PETER TAYLOR said he was quite of opinion that a veterinary surgeon had a right to protect his profession. With regard to the definition of soundness, he understood it to be "free from all disease." Clients brought horses to them which perhaps they had never seen before, and they were expected to examine them, and give an opinion as to their soundness, or otherwise, and give a certificate off hand as to their condition. On that certificate they were held responsible. If they passed a splint, however trifling, or enlargement of the hocks—which might be the product of nature—they were held responsible for passing an unsound horse. Unfortunately for the profession, they could not tell whether a horse would prove a good one or not. They could not state whether whistling, for instance, not serious in itself, might not develop into something very serious. They were placed in a very peculiar position, and as a practical man he considered that their best safeguard was to protect their own reputation and themselves, and on all occasions give themselves the benefit of the doubt. They would find in following their profession that clients were not particular whose feelings and whose reputation they injured, and it was quite possible for a veterinary surgeon by one false move to lose in a week a reputation which had taken twenty or thirty years to obtain.

Mr. STANLEY, of Warwick, said the difficulty was that men often brought horses, and wanted certificates not of absolute soundness, but of practical soundness, which was to all intents and purposes equivalent. If, however, the horse did not turn out well, and the matter went into a court of law, learned counsel would say, "What did you mean by giving a certificate with an unsound horse?" They wanted the power to say to their clients, "This horse is suffering from splints, or spavin, or what not," and if the client wanted an opinion as to the value of the horse to say, "Well, if it were me, I would buy him, because I do not think such and such complaint will interfere with his usefulness." Thus, if a horse was brought to them it would

be better to send to their clients two documents—one a formal certificate as required by law, and the other an expression of opinion as to the practical value of the horse. The clients would in that way have the benefit of a professional opinion with regard to the horse as well as the formal certificate. There had been a good deal said about splints; he always thought splints were not unsoundness unless they caused lameness or interfered with the usefulness of the animal.

Mr. F. W. WRAGG said if he saw a horse with splints he should reject him as unsound, as they were liable to make the animal go lame at any time.

Mr. GREAVES said it depended on what sort of work the horse had to do. If he was put to harness-work it was ten to one against him going lame at all.

Mr. HENRY MEEK agreed with the suggestion that it would be well to send with their certificates a written opinion as to whether such defects as the horses might possess were likely to interfere with their usefulness.

The CHAIRMAN said they had listened to a very instructive and interesting debate; but he must confess he should have liked to hear a few remarks about grunting. They were told by Professor Walley that grunting was not unsoundness. He (the speaker) was of opinion that grunting was abnormal, and anything abnormal must be unsoundness. In the matter of giving certificates, it behoved them to take a common sense course, keep their tempers, and act with decision.

The discussion then terminated, a vote of thanks being passed to Mr. Over for his paper. A vote of thanks was also passed to the retiring officers for their services during the past year; and it was decided to hold the next meeting of the Association at Stafford.

In the evening most of the gentlemen present dined together at the hotel.

Mr. Dale, of Coventry, and Mr. Carless, of Worcester, wrote, explaining their inability to attend the meeting.

ROBERT C. TRIGGER, *Hon. Sec.*

LINCOLNSHIRE VETERINARY MEDICAL SOCIETY.

NOTES of meeting held on Thursday, the 18th January, 1883, at the Albion Hotel, Lincoln, for the purpose of forming the above Society. *Present*—Captain Russell, Grantham; Messrs. W. A. Field, Brigg; F. A. Holmes, Hemswell; J. Sant, H. Howse, W. S. Carless, Lincoln; G. Whitworth, Grantham; H. Brooks, Fulbeck; F. Spencer, Wragby; J. W. Gresswell, Jos. Mackinder, Peterboro'; J. Brown, Navenby; T. C. Smith, Market Rasen.

Captain Russell was voted to the chair. He said: We have met again for the purpose of forming a Veterinary Medical Society for Lincolnshire. It was unanimously resolved at our last meeting that we would do so, and with that view I sent out 102 circulars such as you all have received. I have only received replies from one or two individuals. I have a letter from Mr. Hoole, of Sleaford, who, though unable to be present, wishes to be nominated a member. Mr. Hardy also writes, saying that he will be here later on. The Committee—Mr. Howse, Mr. Whitworth, and myself—have read the rules of the Midland Counties Veterinary Medical Association, and have come to the conclusion that this Society could not do better than adopt those rules, with a few minor alterations. That is all I have to remark to you at present until we get further into the work. The first thing to do will be to nominate a President for the ensuing year, and after that to appoint Vice-presidents, also a Secretary and a Treasurer, and then to read over the rules and correct them as you would suggest, and afterwards to discuss the Veterinary Surgeons

Bill of 1881. I have an important communication to make to you ; but I had better bring it in in its proper place.

Mr. MACKINDER : How many Vice-presidents is it proposed to have ?

The CHAIRMAN : Three ; though it will depend a great deal on the number of subscribers. The Midland Counties Association consists of a President, three Vice-presidents, a Secretary, Treasurer, and members.

Mr. GRESSWELL : I wish to say I have a letter from Mr. Runciman, of Market Deeping, saying he would have been pleased to attend, but he is suffering from a violent cold.

The CHAIRMAN : I may add that I sent a copy of this circular to every veterinary surgeon upon the register in Lincolnshire, the majority in Leicestershire and Nottinghamshire, and the whole in Northamptonshire—in all, 102.

Mr. MACKINDER : On behalf of my father, I might say he would have been glad to be here, but both of us could not attend.

The CHAIRMAN : The first thing to do is to nominate and elect a President for the ensuing year.

Mr. H. HOWSE : I think we should find no one so able to occupy that position as Captain Russell. He knows most of the routine and the business, I dare say better than any one of us, and is altogether well adapted for the office, if he will accept it. I have, therefore, great pleasure in proposing that Captain Russell be elected President for the ensuing year.

Mr. BROOKS : I second the proposition.

The motion was put and carried unanimously.

Captain RUSSELL : I can assure you I accept with pleasure the position of President of the Lincolnshire Veterinary Medical Society, and I will do my best during my year of office to carry on the work and give you satisfaction. I was rather in hopes that you would have nominated a man of the town, seeing that the first meeting is held here ; but as you have thought fit to nominate me, I am only too glad to accept office, and shall be pleased to carry out the duties as far as I am able. Will some one propose three Vice-presidents ?

Mr. MACKINDER : I propose Mr. Howse as one.

Mr. WHITWORTH : I second.

Mr. FIELD : I propose Mr. Brooks.

Mr. GRESSWELL : I beg to second.

Mr. HOWSE : I think we should have some one living at a distance.

Mr. BROWN : I propose Mr. Mackinder.

Mr. HOWSE : I second that proposition.

The CHAIRMAN : I think we may consider these three gentlemen elected.

Mr. WHITWORTH : I propose Mr. Carless as Secretary.

Mr. MACKINDER : I propose Mr. Carless as Secretary and Treasurer.

The CHAIRMAN : In most Associations the President has the right to nominate a Secretary ; but I do not see why Mr. Carless, if he will undertake the duties, should not be both Secretary and Treasurer.

Mr. CARLESS : I shall be pleased to do what I can to help forward the Society.

The CHAIRMAN : Then Mr. Carless is appointed to both offices for the ensuing year. Eventually, if we become a strong Society, we may have to appoint separate officers.

The CHAIRMAN then proceeded to read the rules which had been considered by the Committee. Regarding one Rule, he said : This rule requires a certain amount of discussion. It has been proposed that there shall be three regular meetings in the course of each year. It is for you to say whether that shall be so.

Mr. MACKINDER : I think once in three months is not too often to meet, especially if we are going to meet in different districts in the county.

The CHAIRMAN : It has been found in the Midland Association that we can get better musters by having three meetings instead of four.

Mr. GRESSWELL : I think three meetings will be sufficient, as we shall have a Congress, perhaps, during the year.

The CHAIRMAN : I will put it to the meeting.

The question was put, and it was resolved that there should be three regular meetings held in the course of each year.

The CHAIRMAN : I want to remind you that one of the duties of this Association is to make as good a fight as possible for some individuals for election on the Council, and it is customary in the other Associations in the country to join together and endeavour to elect either their individual members or some individual member of another Society. Whether we should consider ourselves strong enough to put forward a member of our own Society for election on the Council, requires consideration ; but now, I suppose, you will combine with the other Associations with the view of causing the election of any person brought forward that we approve of. For instance, we should join with the Midland, or the Yorkshire, Lancashire, and Eastern Counties, and endeavour to push their candidate, if they had one, and ask them to push ours if we had one. As the meeting takes place on the first Monday in May, and notice of election on the Council requires to be given three weeks before that day, it is a question whether our first meeting should not take place in March, so as to decide whether we bring forward a man of our own, or back up the other Associations in pushing their man. Of course, the object, as you all know, is that so many London men were getting into the Council, that it was necessary to make a stand, and fight to push in country men. Last year we were successful.

Mr. MACKINDER : We should have more country men in the Council. We comprise more members, and we should have our interests looked after. At one time it used to be all Londoners.

Mr. HOWSE : Who were not up in the hundred and one things that occur in the country.

Mr. MACKINDER : In fact, the London vets. consider the country practitioners a set of boobies.

Mr. HOWSE : That is the same with Londoners generally.

The CHAIRMAN : I would suggest that it be the second Thursday in March.

Mr. MACKINDER : How would February suit? With most of us March is a rather busy month, owing to its being the mare-foaling season. With me it is a very busy month.

Mr. SANT : We should meet before April Fair.

The CHAIRMAN : My reason for mentioning March is that we want to know what the other Associations are going to do. Their meetings are held in the first week in March or the last week in February when they elect their candidates.

Mr. MACKINDER : I am ready to give way. When does the Midland meet?

The CHAIRMAN : January 25th.

Mr. MACKINDER : We should know what they were doing if we had a meeting in February.

The CHAIRMAN : I don't know about the others. I think you will decide to day that the Secretary be empowered to unite with the other Associations in backing their candidate. If the first meeting of the Association is fixed for March we should have another meeting, but if for February it would be almost too soon from now.

Mr. HOWSE : There is no particular benefit in having a meeting so quickly.

Mr. GRESSWELL : Perhaps we might enrol more members.

The CHAIRMAN : I don't suppose we shall bring forward a candidate this year. We should rather obtain the sympathy of other Associations by backing their candidate. Shall we say the last Thursday in February?

Mr. HOWSE : As far as I am concerned it makes no difference.

The CHAIRMAN : It will be the last Thursday in February, June, and October. Will that meet your wishes?

The CHAIRMAN then read the remaining rules, and said : Those are the rules ; it is now for you to decide whether they shall be adopted.

Mr. MACKINDER : Will a copy be sent to the members?

The CHAIRMAN : If they are passed, the Secretary will have power to get them printed, and at the next meeting a copy will be presented to the members.

Mr. MACKINDER : I think every one would like to have a copy.

The CHAIRMAN : Certainly, every one can have a copy on applying for it. Perhaps those who wish to join the Society will sign their names on the paper.

Mr. SANT : Will you have a list of the members printed?

The CHAIRMAN : I think it would not be a bad plan to print a list of the members at the formation, certainly. I should like to explain another little matter. It is customary in the Associations for the various minutes and matters brought forward to be taken down by a shorthand writer, because the VETERINARY JOURNAL is now the medium of informing the profession what is done by the Associations, and also to assist the Secretary. It was found impossible for the Secretary to take down sufficient notes to enable the profession through their periodical to understand what had taken place, and therefore rules have been framed to enable the Secretary to employ a shorthand writer for that purpose, and I should like your authority to continue in that way and employ a shorthand writer. It is your wish that a shorthand writer be employed.

The rules were then adopted, and

The CHAIRMAN said : We can consider that we have formed ourselves into a Society, and that these are the rules of the Society, and the Secretary is empowered to get them printed ; and you agree to pay a sovereign as a donation on entrance, and half-a-sovereign per annum henceforth. If it is convenient, you will, perhaps, give the Secretary your sovereign, or send it to him in the next day or two. Of course, expenses have to be incurred. These rules will have to be printed ; and I hope, in time, such will be the success of the Society, that we may be able to do as others do, provide special instruments, not much used by members, for their use, and carry on the work in the successful manner other Societies do. I shall be glad to receive the names of several distinguished practitioners as Honorary Associates, and I am sure we shall always do our best to encourage local practitioners to join the Society. We cannot get on without donations, and it must be our endeavour to ask every practitioner in the neighbourhood that is worthy of joining an Association of this sort to come among us. Where shall we have the next meeting? It will be hardly worth while to have a meeting on the last Thursday in February, so that the next meeting will be on the last Thursday in June.

Mr. MACKINDER : Supposing we meet at Grantham.

The CHAIRMAN : We will say the next meeting will be held at Grantham.

YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE annual meeting and dinner were held at the Queen's Hotel, Leeds, on Friday, the 9th February, the President, Mr. J. M. Axe, in the chair ; the following members were also present, viz., Messrs. T. Greaves, James Freeman, J. S. Carter, Joseph Freeman, Peter Walker, J. H. Ferguson, Parlane Walker, George Carter, P. Deighton, George Hardie, R. L. Robertson, George Bowman, T. C. Toop, G. Whitehead, W. F. Greenhalgh, H. Cooper, M. E. Naylor, J. E. Scriven, B. Smith, and the Secretary.

Messrs. W. H. Coates, London ; C. W. Elam, Liverpool ; Thomas Briggs, Bury ; and E. Faulkner, Manchester, were present as visitors.

Apologies for non-attendance were received from Professors Williams and J. W. Axe, Messrs. E. C. Dray, J. W. Anderton, G. Schofield, J. Tatam, W. Lodge, H. Suarry, J. Bale, D. Sowerby, S. F. Fallding, J. L. Faulkner, John Fryer, and F. Danby, Messrs. E. T. Cheesman, 5th Dragoon Guards ; R. H. Ringe, 11th Hussars, and a number of Lancashire friends.

The minutes of the previous meeting were read and confirmed.

Mr. BROUGHTON proposed, and Mr. CARTER seconded, the election of Mr. Briggs, Halifax. Carried unanimously.

Mr. PETER WALKER proposed, and Mr. NAYLOR seconded, the election of Mr. Henry Carter, Bradford. Carried unanimously.

The SECRETARY nominated Mr. Henry Fletcher, Sheffield, for membership.

The SECRETARY proposed, and Mr. PETER WALKER seconded, a vote of thanks be given to Mr. J. W. Anderton for his services in the Council during his term of office, now expiring, and that he be requested to offer himself for re-election.

Should Mr. Anderton decline it was resolved to nominate Mr. Broughton.

The SECRETARY introduced the subject of the National Veterinary Medical Association, and invited the members to give the movement a hearty support. Messrs. GREAVES and BRIGGS also urged the members to support the Association.

The PRESIDENT read the inaugural address as follows :—

Gentlemen,—It is my first duty to thank you for the honour you have conferred upon me in electing me to fill the presidential chair of the Yorkshire Veterinary Medical Society during the present year. It is hardly necessary for me to say how few of those qualities I possess which fit a man to direct the affairs of an association of this description, still less need I remind you how abortive must be any attempt of mine to emulate the high accomplishments and business attainments which have distinguished our late president and his predecessors, and which in the past have contributed so much to the interest of our body and the good of the profession. I cannot claim to possess either the power to initiate, or the confidence to guide the necessary movements which these days of rapid progress and scientific growth demand at the hands of those who accept the responsibilities of office. It therefore becomes me best to proclaim my weakness, and to make known how much I must rely on your individual and united support for the success of my year of office. It is not enough, I know, to possess the will to achieve success, but it needs likewise to find the way. The latter merit, it has often been said, is the necessary outcome of the former, but I fear, in my case at least, this very encouraging proposition will fail me without the assistance of your valuable advice, and the generous indulgence and forbearance which I know you are well capable of extending to your colleagues in the conduct of our affairs. I may be permitted to say that never in the whole history of our profession was there a time when greater vigilance was needed in the discharge of our political and scientific responsibilities than the present. In the imme-

diate past a great and important constitutional change has been effected, mainly by that system of co-operation and mutual help of which veterinary medical associations are the spirit and embodiment. The Veterinary Surgeons Act, which our senators have recently procured for us, is the greatest and most effective triumph of our existence as a corporation, and a noble stimulus to even greater achievements in the future. It is not a little encouraging to know that the title which we have so long and patiently shared with the ignorant and dissolute, is now to pass into our hands, and to become the exclusive right of the profession. It cannot, however, be forgotten that although a great want has been supplied, and a great dignity conferred upon the title by which we are now distinguished, there has, at the same time, been imposed upon us a heavy and necessarily a long-abiding burden. Vested interests have in our case, as in many others, asserted their right to protection, and the Legislature has seen fit to demand of us concessions, which for the time must seriously detract from the honour and distinction which we have sought and obtained for our professional title. That the qualified practitioner should be distinguished from the unqualified is no less in the interest of the public than ourselves, and having regard to the super-excellence of our live stock over that of other nations, and the ever-growing facilities for the dissemination of diseases, both home and foreign, the withholding of State aid so long and persistently cannot surely be regarded otherwise than culpable negligence, both of our profession and the best interests of the country. Gentlemen, I would *here* remind you that although our title has been protected, empiricism still remains unmolested, and under the title of farrier or other evasive descriptions, it is still legitimate for the pretender to share in the emoluments of our calling. We have not annihilated quackery, but merely weakened its pretensions. While, then, we value at its real worth the distinction just secured to us, let us not rest satisfied, but with redoubled energy seek to further disarm and illegalise the charlatan, and acquire for ourselves the exclusive right to practise veterinary medicine. I believe that up to the present time over one thousand persons have claimed to become registered veterinary surgeons. Amongst them are men of undoubted probity and honour, well versed in the practice of the profession, and whose social position is not inferior to our own ; but I fear there are still more whose personal and professional qualities are, to say the least, inexcusably pernicious, if not actually demoralising. It is to this latter class that I would ask your attention in the immediate future, and solicit your aid in an endeavour to exclude them from the privileges of registration. Gentlemen, while we give the political side of our duties its due share of attention, do not let us forget the chief object of our service, namely, the science and art of comparative medicine. In this direction there is much to be done, and I trust the present session may be rich in useful work and fruitful of good and lasting results to ourselves and our profession.

Mr. JAMES FREEMAN proposed, and Mr. JOSEPH CARTER seconded, a unanimous vote of thanks to the President for his inaugural address. Carried unanimously.

At the dinner the usual loyal and patriotic toasts were proposed and duly acknowledged, followed by a number of veterinary toasts, and an enjoyable evening was spent by all present.

CENTRAL VETERINARY MEDICAL SOCIETY.

A MEETING of this Society was held on the 18th of January, at 10, Red Lion Square ; the President, Mr. J. Woodger, in the chair. The following Fellows were also present, Messrs. H. K. Shaw, F. W. Wragg, J. Mosedale, C. Sheather, A. Broad, T. Burrell, G. R. Dudgeon, H. J. Hancock, J. Rowe, A.

Charles, T. Chesterman, F. G. Samson, G. Gray, W. Hunting, A. B. Daniel, E. M. Davy, and H. W. Caton.

Amputation of Penis.

Mr. GRAY exhibited a portion of a horse's penis, about six inches in length which he had amputated. The horse had suffered an injury about three months previously, from getting fixed over the chains, and had lost the power of retracting the penis, the extremity of which had become much swollen. The part of the operation which alone needed much care was the securing the arteries by ligature. The patient appeared fit to work in a fortnight; but two days after that time Tetanus set in, and a most severe attack of the malady was experienced. Recovery occurred, however, in about five weeks, except that a little stiffness still remained in the hind quarters.

Mr. DANIEL said he assisted in the operation, and suggested that, in order to obviate the trouble so frequently arising in these cases from retraction of the extremity of the urethra during cicatrisation, about three inches of the muscular portion should be left in advance of the division. The only arteries he found it necessary to ligature were the superior and two lateral. The attack of Tetanus was, he said, a very acute one, as severe as he had ever witnessed. By the aid of seven or eight men, nitrate of amyl was administered one night when the paroxysms were most severe, and was subsequently continued at these times, the relief from spasm and pain being most distinct.

Mr. SHEATHER had on two occasions amputated portions of the penis, and had found no difficulty arise from retention of urine through this contraction of the urethral orifice; he adopted the plan of splitting the exposed end of the urethra for an inch or so, and applying an irritant dressing, as turpentine and oil, to retard the adhesive healing action. With regard to nitrate of amyl, he had used it in one case of Tetanus, and found it procured sufficient relief from spasm to allow of the patient feeding, though in about an hour and a half the muscular rigidity returned, but after repeated administration of the drug the horse recovered.

Mr. WOODGER referred to two cases in which his father had operated upon the penis for diseased growths; in both, constriction of the divided end of the urethra occurred, occasioning retention of urine, but only after long intervals—in one case fifteen months after the operation, in the other eighteen months. The actual cautery was employed to arrest the hæmorrhage.

Endocarditis—Ruptured Heart.

Mr. BROAD brought before the meeting the heart of a bay van horse. It showed much disease of the mitral valves, and a rupture of the right auricular wall. The mitral valves were much thickened, had, in fact, quite lost their membranous character, and a cloudy inflammatory condition of the endocardium was seen extending into the left auricle: here was a pale fibrinous clot entangled in the muscular bands. The endocardium of the left ventricle was discoloured in patches; the heart was quite empty, the pericardial cavity being found full of clotted blood. The weight of the organ, when freed from pericardium and all adjacent lung tissue, was seventeen pounds and a quarter. The pulmonary artery and its branches were free from clots. The first attack of Endocarditis occurred on the 2nd October, the horse being seized with pain while at work; he was brought home in a state of great distress. After three weeks' rest and treatment, he again continued at work for about twenty days, when a similar seizure was experienced; the animal suddenly stopped, and could not be induced to move; he laboured in breathing, and bled from the nostrils; the prominent symptoms, for the

first three days, were an extremely rapid pulse, 120 to 100, but regular; hurried breathing, and occasional epistaxis. The quick respiration soon abated, but the heart was excited in action for many days; he was again in the stable about three weeks, and was then sent out, but had not been worked much more than a fortnight when an attack of the same kind occurred, and he was brought home in a similar state of distress; he soon rallied, and as usual, soon after each attack, fed well, and was in good spirits, the only unfavourable symptom being an irritable state of the heart, the pulse remaining at 48 or 46. He was being exercised in the street on the 13th January, when he was observed to stagger; he was at once brought into the yard, but dropped and died in about one minute.

Mr. ROWE quoted a case of heart disease, the pulsations being most irregularly intermittent, the respirations forty in the minute. It appeared, he thought, from cases he had observed, that epistaxis with distress was a frequent consequence of diseased heart.

Mr. WRAGG said it was his experience that a great deal of heart disease existed, especially among heavy horses; he had seen several cases of rupture, nearly all of them occurring in the right auricle. He referred to a case under his notice a few days before; the horse died from cardiac disease, and a clot was found filling up both cavities on each side of the heart, and extending some distance into the posterior aorta.

Mr. DANIEL said he had closely examined the specimen, and had no doubt that it was an *ante-mortem* rupture, and not the result of any clumsiness in extraction; the membrane of the right auricle was cloudy in appearance, and the appearance of the ruptured muscle was characteristic.

Mr. GRAY had met with several cases of disease of the heart, and thought it was more common than was generally supposed. About a week ago he was called to see a horse, which was, to all appearance, in perfect health, but which dropped exhausted when made to draw a load; the pulse was extremely irregular. In another case the horse frequently fell when working on the land, but went very well upon the road.

Mr. BROAD mentioned the case of another horse he had attended, in which the symptoms were different to those in the case he first related; the horse suddenly came to a standstill, and was attacked with epistaxis, but when brought home, the pulse was not found to be so quick, about sixty, though extremely irregular and intermittent.

Mr. WRAGG said he knew a horse that had been at work regularly for about six years, though he had intermittent pulse the whole time.

Mr. BURRELL drew attention to the fact that it was known that a horse would continue at work for an indefinite period with intermittency of pulse, actual disease of the heart not being necessarily indicated; but he said he had never known a horse which suffered from an irregularly intermittent pulse to be capable of hard work. He referred to jugular pulsation as one symptom of heart mischief.

Mr. WOODGER said it was his opinion that much heart affection in horses existed unsuspected. He had seen some attacked with palpitation while at work; in others the attack had happened in the stable; one horse in particular, which had been hunted many times, had a fatal attack at last while in the stall. He regretted that veterinary surgeons had not such good opportunities of diagnosing cardiac ailments as human practitioners had.

Mr. WOODGER then read his essay on Glanders-Farcy, and its cause.

Glanders-Farcy and its Cause.

There not being any other paper for this evening, I propose making a few remarks upon the cause of Glanders-Farcy.

I have in this paper confined my remarks almost entirely to the practical part of the subject ; our secretary (Mr. Alfred Broad) having so ably dealt with the subject of infection, in his paper read before this Society last session, particularly with regard to the different theories, it is needless for me to go over that ground again.

Some eight or ten years back, I read a paper at this Society upon Farcy and Glanders ; since that time I have seen so many outbreaks of this disease, that I am not ashamed, but rather pleased, to confess that with my greater experience, and with making searching enquiry into the cause of each outbreak that has come under my notice, my view of the cause has been considerably altered, and I am pleased at having this opportunity of making that statement.

I am sure that every one here will agree with me that Farcy and Glanders are one and the same disease, presenting different forms of manifestation or symptoms. This, as you are all aware, has been proved by inoculation, and in one's daily practice it is most common to find a horse with Glanders give its neighbour Farcy, and *vice versa* ; but I may, in my remarks, for reasons I shall give, have to speak of each form of the disease separately.

The causes of Glanders-Farcy, as given by some writers upon this disease, and believed in by some few other persons, are debility (produced either by bad food, hard work, or both combined), bad drainage and ventilation ; any disease, operation, or, in fact, anything which produces debility ; and contagion.

In the first class of these so-called causes—that is, the generation of the disease otherwise than by contagion—there are one or two matters to be seriously thought of before we ought to arrive at such a conclusion : the period of incubation, the source from which the disease might have been contracted, and, lastly, the possibility of producing it except by contagion.

The period of incubation is most uncertain ; in some instances symptoms present themselves in a few days, in others not for many months, and in some instances symptoms appear and, under generous treatment, disappear for months, and even years, and then appear again ; the latter are the so-called “cured” cases.

Then, has there been no source from which the animals could have become infected or contaminated ? In some instances it is most difficult to find the source of infection ; in others it is most easy. As an instance, some two years back I was requested by a firm to meet their veterinary surgeon in consultation respecting a valuable cart-horse they had. Upon examination of the animal, I gave my opinion that it had chronic Glanders of very long standing ; and I was led to this conclusion from the state of the Schneiderian membrane, where there were numbers of scars of previous ulceration, with the other usual symptoms. This animal had been standing with the other horses up to a day or two previous to my visit. I was informed that the loss in this stable had been more than ten per cent. per annum from this disease, and it was attributed to bad drainage. I differed from that theory, and expressed my opinion that this animal had done much of, if not all, the mischief of late. Since the slaughter of this horse, I am informed the loss in the stable from Glanders-Farcy has been very slight.

I could relate many instances where various diseases have terminated in Glanders-Farcy ; but where an animal with the disease in a chronic form (as in the case just related) has been spreading it.

An animal may have the germs of the disease in its system but remaining dormant until some disturbance, produced either by illness, injury, or operation, may bring them into vitality or rather activity. So that many horses supposed to generate the disease really do not do so, they having the germs in the system inactive until some disturbance occurs.

Then is it possible to produce Glanders-Farcy other than by contagion? I never heard but one gentleman in our profession say he could, and by large doses of aloes. Now it so happens I saw a horse to which by accident 12 drachms of aloes had been given; this produced excessive purgation. I was sent for, and found purgation very great, enlargement of one sub-maxillary gland, and discharge from both nostrils, the Schneiderian membrane on the same side as the enlarged gland having the appearance of blisters. I at first thought it a case of Glanders, but after a more careful examination of the membrane, felt sure it was not. The horse perfectly recovered in a few days; possibly this gentleman who stated he could produce it with aloes had a similar case to mine, and mistook it for Glanders.

I am fully convinced that the sole cause of Glanders-Farcy is from contagion. It may be difficult and in some cases impossible to find the source whence the animal obtained the germs of the disease, but when we consider how easily they are carried about, as I shall show further on, it is not to be wondered at that we cannot always find out the source.

Debility, other diseases, operations, bad feeding, etc., may be predisposing causes, and predisposing causes only.

In many cases where debility is supposed to terminate in Glanders-Farcy, is it not the disease of Glanders-Farcy which is producing the so-called debility?

It has been my lot to see many cases of Anæmia, which have been under treatment for days or weeks, when suddenly symptoms of Glanders-Farcy appeared. Some of these horses have been destroyed at the first decided symptom, and upon making a *post-mortem* examination the lungs have been found to be extensively studded with miliary tubercles, showing the disease had existed for a long time, and was the actual cause of the Anæmia.

If there were any doubts about its being produced other than by contagion it is a most dangerous theory to teach the non-professional; for it makes the persons about such horses extremely careless of spreading the disease.

That Glanders-Farcy is contagious, no one doubts; that it is infectious many dispute; but I do not intend making any remarks on this point, except to state that I believe it to be both. As I said before, no one disputes its being contagious; the contagion of Glanders is in the discharge from the nose, of Farcy in the discharge from the ulcers or "buds."

The discharge from the nose in Glanders is sometimes very slight, in fact, only an occasional drop of pale amber-coloured, sticky-fluid, in many cases adhering to the alæ of the nostril; in others it is more or less copious, having more or less mucus; when this is the case it does not stick to the nose to the same extent. Now it has occurred to me, that in those cases where the discharge has been copious, the other horses in contact have not so frequently caught the disease. This may be from two reasons, separately or combined; first, the discharge being great, the persons in charge of the animal may, and no doubt in some instances do, exercise more care in keeping the diseased from the healthy; secondly, in the copious discharge the much larger portion is mucus, and that being so, I cannot but think that this mucous discharge in itself is incapable of producing the disease in others, that is to say, does not contain any of the germs of Glanders. If the whole of the discharge were equally virulent, I should expect in those cases where it existed more horses would take the disease; and, again, animals have been inoculated with the discharge from the nose of horses with Glanders, and some of the animals so inoculated have not taken the disease. May this not be from the mucous discharge only having been used?

It would be impossible to separate the two discharges one from the other; but it would be instructive upon this point if one had a horse affected with Farcy, and at the same time catarrhal discharge from the nose, to inoculate a

few animals with the discharge from such horse. I take it that would prove if it contained any of the germs of Glanders-Farcy or not.

In Glanders, the amber-coloured discharge from the nose certainly contains the germs of the disease, and in Farcy the discharge from the ulcers; these germs must be introduced into the system to produce the disease in either form. There are several ways by which these germs may enter the system; by the mucous membrane of the respiratory organs, alimentary canal, or the eye, and by any wounds of the skin.

It has been stated by many members of our profession, that if the virus be taken in either the food or water it cannot produce the disease; but experiments have been performed showing that it can, and I think there is not the slightest doubt about it. But possibly the percentage of affected of those swallowing the virus is but small, or I feel convinced that the use of pails and water troughs indiscriminately in large studs of horses, and the water troughs in the streets, would be a means of giving the disease to thousands. Is it not possible that the gastric secretions in very many cases may destroy the germs of the disease?

Then the virus may enter the system by wounds of the skin; this would be direct inoculation, and I can call to mind several such cases.

The glandered horse, when next his neighbour or passing another, may give a snort or cough which would distribute the nasal discharge somewhat like a spray-producer, and possibly impinge upon the eye or be drawn up the nostrils in inspiration, and thus enter the system.

It has been asserted by some that the dry discharge, either from the nose or ulcers, is perfectly inert. This I deny, for I firmly believe the dry discharge from the nose in Glanders is more often the cause of the spread of the disease than any other medium of contagion.

Probably most of the gentlemen here have noticed the discharge on the wall, divisions of stalls, or mangers, where a glandered horse has been standing. This, in some instances, is quite firmly fixed to the parts, but in others (probably that which has been there some days) it will be curled up in the drying, and only slightly adherent; so that the least touch, or even a strong wind, will detach it. This may be blown away, or if another horse be put into the stall, what is more likely than that he, in smelling about, may detach some of this, and in inspiration draw it up his nostrils?

Again, the men in charge of glandered horses, in feeding often allow them to rub the discharge on their backs, and thus carry it about to be inspired by healthy ones. I can call to mind an instance of this. Some months back I was requested to see some horses. I found one with chronic Glanders, and one with Farcy, and advised the slaughter of both. The owner would only consent to have the one with Farcy destroyed, and removed the other to a box by himself some distance away. Notwithstanding this, he lost several more from Glanders, still keeping the first one, against my advice. I cautioned both owner and man repeatedly about not allowing the horse to rub the discharge on their clothes, and one day, whilst repeating my caution, the horsekeeper went up to the manger with a basket of food, and the horse rubbed his nose along his back, leaving a good coating of the discharge on his clothes, the owner and myself witnessing it. This convinced the owner that his isolation was of no use, and he at once consented to have the horse destroyed.

Goats, pigs, cats, etc., may just as easily carry the virus about.

The contagion of Farcy is in the discharge from the "buds," or ulcers; this is not so likely to spread the disease, for although the discharge is probably as virulent, still it is not so likely (except when affecting the nose or face) to get upon the mangers, pails, clothes of the attendant, etc., and thus the healthy are less likely to get any of the discharge upon any part where it

can be taken into the system. But in the cleansing of the ulcers, the disease may be spread by using the same sponge or tools to other horses.

To recapitulate: the cause of Glanders-Farcy, I may say, is contagion alone; that the disease may be spread by actual contact with the diseased animals, or it (that is, the virus) may be carried about by the attendant upon the diseased animals, or by animals such as cats, pigs, goats, etc., allowed about the place; that the theory of spontaneous generation I entirely disbelieve (although years ago I did believe in it), as it is impossible to produce the disease unless its germs be introduced from without; and that the dried discharge from the nose in Glanders is more frequently the means by which it is spread than in a wet state, or than the discharge from the ulcers in Farcy.

Before concluding, I should like to make a few remarks upon the means of preventing the spread of the disease. The best, and by very far the most economical measure, is to slaughter every horse showing the least symptom of the disease in either form; by pulling down all old mangers or woodwork, and thoroughly disinfecting the whole of the stable and every article used about the diseased horses, including the attendant's clothes, if necessary. If slaughter be objected to, then the animals should be perfectly isolated, and by this I do not mean the isolation as carried out by some—that is, merely putting the horses into loose boxes or stalls with a division of wood or other material about six or seven feet high, leaving the upper part open from healthy to diseased; but they should be moved into another yard, away from all healthy horses, and kept under the care of a man whose whole duty is to attend to them; and this attendant should be strictly cautioned as to the contagiousness of the disease, and exercise every care, or he himself may become affected, as not a few persons have been.

In nearly every instance where I am called in and find a horse with Glanders-Farcy, I suggest that an examination of the whole of the horses should be made, and in very many instances I have found that a horse which has never been thought to have anything amiss has really been causing the mischief, and probably would have done much more if it had not been detected by me.

That the recovered cases should never again be allowed with the healthy, and ought never to be sold except for slaughter. I say the recovered cases, for I have seen many of these, and will give you the history of one. About four years ago I was called to attend a horse which, upon examination, I found was affected with Glanders. The owner would not have him destroyed, but kept him, and eventually all the symptoms disappeared; he was put with the healthy horses, and as far as I know did not exhibit any symptoms for three years, when he was shown to me again, with decided symptoms of Glanders. He was again put under treatment and all the symptoms disappeared, and he is now with the healthy horses, but against my advice. Glanders-Farcy is never out of this stable for long, and I should not be surprised if this horse has been the means of giving it to many.

Many of the cases of so-called recovery from both forms of the disease will eventually break out again with it sooner or later and probably give it to others. So that there cannot be a doubt that slaughter is the best and by far the cheapest remedy and preventive of its spread.

The Contagious Diseases (Animals) Act may have done a little good in stamping out the disease, but I do not think it has done much. It appears to me that the form gone through in the inspection (after notice of an outbreak is given) is a perfect farce, quite useless and incapable of tending to prevent the spread of the disease; and, moreover, I am sorry to say some inspectors endeavour to push themselves in to the disadvantage of the veterinary surgeon in attendance.

There are many persons who constantly work horses with this disease, and are very seldom discovered ; and many stables in London are perfect hot-beds. If these people were looked after, then much good might be done. More good has been done in stamping out the disease by the members of our profession in their private capacity than the Contagious Diseases (Animals) Act has ever done. My experience is that most people now are easily persuaded into slaughtering the affected horses, especially educated men, and the veterinary surgeon at the present time gets credit (and justly) for being something more than a quack, and his advice thought much more worth having than was the case a few years back.

In every instance in which the stamping out of the disease has been promptly carried out, I am sure none have regretted it, and in my practice where it has been followed, I do not call to mind a stable in which the disease exists now. I am sorry to say that a few of my clients will not believe in stamping out (and I think this is partly due to their belief in its generation other than by contagion) ; they do not like the idea of slaughtering a good horse unless it has the disease badly ; the consequence is, there are always cases occurring in their stables.

Some horses in which there is a doubt if they be glandered or not, have been by old horse-masters classed as "suspicious ;" no doubt their veterinary surgeons have told them they were suspicious cases of Glanders, and the word suspicious has been used until some believe it to be a distinct disease, something between Glanders and health. These cases very often are cases of chronic Glanders, and the most dangerous animals to keep about. "Suspicious" is a word I never use, having seen the danger of its making people careless.

In conclusion, gentlemen, I must thank you for the kind attention you have paid to my remarks. I hoped to bring a paper upon a subject not so common to us as Glanders-Farcy, but time would not permit. I trust you all will join in the discussion, and that although it is a disease so common to us, we may all leave this room having gained more knowledge upon the subject.

Mr. HUNTING in opening the discussion complimented the essayist on the practical and useful nature of his paper. He was pleased to hear that Mr. Woodger had become a convert to the modern views on the origin of Glanders. He did not think that private practitioners generally had done so much towards eradicating the disease as Mr. Woodger had stated, especially in the country, where cases of the kind were kept under treatment, unreported, and where much ignorance of the malady prevailed. For this state of things the erroneous views hitherto taught by the teaching centres were in a great measure responsible ; it had been taught that Farcy was curable, and that Glanders and Farcy could arise from hard work, bad ventilation, and so on : it was, therefore, now the duty of veterinary surgeons to help the Government and private individuals to undo the mischief wrought. Private practitioners could doubtless effect much good without legal enactments if they chose, but it was a question, he said, whether they all used this power. He had no doubt that Farcy could be sometimes apparently cured, but not absolutely ; two years ago he would have said that in young horses it might be radically cured, but about eighteen months ago he saw a *post-mortem* examination which revealed the worst state of disease he ever witnessed, though symptoms had only been developed a few days prior to death ; three years before the horse had been treated for Farcy, and seemed to recover. The disease will remain latent in the system for three years ; then why not for four, five, or six, or more years ?

He then related how an outbreak of Glanders occurred among some coal-pit horses, where dried matter upon the walls was the cause of disease. The

stable into which the horses were put had been, some years before, occupied by a number of horses which had died off in the most rapid manner from acute Glanders ; since which time the place had been closed and untenanted.

He thought much mischief and spread of disease in London resulted from the sale of studs of horses in which Glanders had broken out, and that some restrictions should be put by the law to prevent indiscriminate sale in such circumstances.

The further discussion of the subject was then adjourned to the next night of meeting.

ADJOURNED DISCUSSION ON THE SUBJECT OF MR. WOODGER'S ESSAY.

This meeting was held on the 1st of February at the usual place, the President in the chair ; the other Fellows present being Professor Pritchard, Messrs. G. R. Dudgeon, F. G. Samson, G. Gray, A. Broad, H. K. Shaw, C. Sheather, J. Rowe, T. Burrell, W. Roots, and W. Hunting.

Mr. SHAW said he agreed with most of the statements of the essayist as to the origin and nature of the disease. He also had reason to think that goats and other small animals about a stable were carriers of contagion. He defended the inspectors acting under the authority of the Contagious Diseases (Animals) Act against the statements made by the President. As to the provisions of the Act, he thought, with Mr. Hunting, that more restrictions might be applied to the sale of horses from infected premises, such horses when sold by public auction causing a wide dissemination of disease.

Professor PRITCHARD questioned the speaker with regard to his reference to repositories, but Mr. Shaw said he spoke from intimate knowledge on the point.

Mr. SAMSON thought that owners of affected horses were allowed to keep them too long, and it was hard work to convince them that farcied horses should be killed ; veterinary surgeons also too often unwisely kept them for treatment. He supported the assertions of Mr. Shaw that horses with the latent disease were too freely sold from infected premises, and he regarded the frequent sales of cab stock with great suspicion. He agreed with the essayist as to the danger to be feared from dried matter upon the walls, and urged the necessity of thoroughly scraping and scrubbing all exposed surfaces prior to applying the disinfectant.

Mr. BURRELL said : " It is to be regretted that veterinary surgeons are so anxious to kill rather than cure. I do not see why we should not treat a case of Farcy, for some are curable ; I have watched them for eight or nine years after recovery. It was admitted by Mr. Hunting that a horse, after treatment for Farcy, may go for five, or even six, years without a re-appearance of the symptoms. Now I will invite him to go a little farther, and say an indefinite time, and I consider this equivalent to saying that the complaint may be cured ; for surely if a horse may so far recover his health as to keep free from any symptom of disease for eight or nine years, we might expect the same to happen for any number of years. I think it well that we should understand what is meant by the phrase ' latency.' A case of so-called latency is reported in the VETERINARY JOURNAL for April last, but it was a clear case of chronic Glanders. I am inclined to doubt whether the disease does become latent ; we do see the external symptoms disappear, and lung complications show themselves, but there is nothing latent in such a case. If a horse is free from any indication of disease, if there is no increase of pulse, and nothing to lead one to suspect that the animal has Farcy or Glanders, why should we assume that the complaint is latent in the system ? If the horse should again suffer, can it not be supposed that a fresh con-

tamination has taken place, seeing that the germs of disease are so ubiquitous?" He then said the cases for treatment should be selected; if the horse fed well, and if the disease was confined to one limb, he thought it was a very proper case. Isolation was always to be adopted. "Stamping out" he considered impracticable for several reasons, one being the difficulty of making accurate diagnosis.

Professor PRITCHARD said, "Have you ever found tubercles absent from the lungs of a horse which had suffered from Farcy?"

Mr. BURRELL said he had.

Professor PRITCHARD said it was a sight he would travel far to see; should he find lungs free from tubercles, so-called, he would say that the disease was not associated with Glanders. He said that Mr. Burrell had exposed the weak point in his argument when he stated that, although he would treat and cure some cases of Farcy, they should be completely isolated.

Mr. BROAD said he understood Mr. Burrell to mean, merely that he would isolate his mild case of Farcy, lest its contagion should produce in another horse an acute attack, either of Farcy or Glanders. Still, he did not agree with the views which Mr. Burrell had enunciated. The "stamping out" principle could not be too vigorously enforced. The dangers and difficulties of isolation were very great. In practice, he had found that where it was customary to treat cases, however isolated, there the disease was most rife and rooted, always cropping up; but in those stables where each outbreak was cut short by the slaughter of the animal, it soon became of rare occurrence. He considered that the Act of Parliament had done much good, even though its provisions had been, as in the case of other Acts, often evaded. With regard to Mr. Woodger's remarks upon the different characters of the nasal discharge, he was of opinion that if a horse had Farcy, and, following out the suggestion, a catarrhal discharge appeared, the system would be so imbued with the poison of disease, that the discharge would not be found innocuous.

Mr. HUNTING said he would take up Mr. Burrell's challenge, and aver the possibility of entirely stamping out Glanders, as had been the case with other diseases. He instanced the horses of the British Army, which had once been a hotbed for the malady; now it is rare in the returns. The Zulu, Ashantee, and Egyptian campaigns had all been finished without an outbreak of Glanders, though—among the Bengal Cavalry—some horses had fallen victims to it while in Egypt. Certainly, if eradicated, the disease might be re-imported, as it had been already from New York. He said he had known stables in which Glanders used to be exceedingly rife, but where it had now dwindled to a very small percentage. He quoted extracts from the Veterinary Report of the Privy Council for 1881. The Metropolis headed the list for number of cases; next came the Home Counties. Lancashire, though including Manchester, was very low on the list. Where the local authorities will not exert themselves there is, he said, great difficulty in eradicating the disease; this is the case in Manchester. He was of opinion that the Act had certainly done good; a few years ago one could safely count on finding at each of the slaughter-yards in London one or two cases of Glanders or Farcy on any day of the year; such is not the case now. If Mr. Burrell's advice were acted upon, he agreed that it would be impossible to eradicate Farcy or Glanders. It was probably true that a horse might recover from Farcy and never show any symptoms again, but such cases are few and far between, hardly one per cent., and we must legislate for the ninety-and-nine.

Mr. BROAD said that his conclusions with regard to the latency of the disease were supported by the result of *post-mortem* examinations. He had

seen horses apparently recover from Farcy and Glanders, and they had, at various times subsequently, met with an accident, or some totally different disease ; in their lungs the characteristic miliary tubercles were found. The same state of lungs was occasionally seen in the examination of horses dying from non-specific complaints, those horses having come from stables harbouring the disease, but having never been known to show any symptoms, either of Glanders or Farcy.

Mr. SHEATHER said he had had medical charge of a large stud of horses for six or seven years ; it had been the rule formerly to kill annually some two or three-and-twenty horses for Glanders. Farcy was treated, he said, to the bitter end. After great difficulty, he inaugurated a different system, and slaughter began wholesale, error being only made on the safe side. The stud became remarkably healthy, many months passing without a case. The disease could be "stamped out" if the requisite trouble were taken. It was, he said, very necessary to watch the incoming horses ; a stable could not be kept free if horses were brought from all sorts of places. He thought that other affections were often mistaken for Farcy, and cured. He referred to a horse he had which only suffered from a persistently swollen hind leg, amenable to no treatment : after slaughter the lungs were found extensively diseased.

Professor PRITCHARD, replying to a question from Mr. Shaw, said he believed that the lungs were always implicated. Glanders and Farcy were synonymous terms, the same disease in different situations. There were, he said, many affections of the absorbents of the limbs unassociated with Farcy, and these are cured, genuine Farcy you will not cure.

Mr. WOODGER, in the course of his reply, said he did not attach so much blame for inefficiency to the inspectors as to the Act of Parliament. In stables where the loss from this disease is great and continuous, what good is effected by the Act as now enforced ? He had never seen a reputedly cured case go longer than three years without a relapse. In every farcied horse examined by him *post mortem*, he had found miliary tubercles, and he thought that the lungs were not so much affected in acute Glanders as in cases of milder type. He was able to point to several studs of horses in his district from which Glanders and Farcy had been quite eradicated. He instanced cases of the mischief resulting from the indiscriminate sale of an infected stud of horses.

Mr. HUNTING then proposed a vote of thanks to Mr. Woodger for the essay contributed.

Mr. BURRELL seconded the proposition, and it was unanimously carried.

Mr. ROOTS laid a morbid specimen before the meeting. It showed a thick pedicle, about six inches long, attached at one extremity to the colon and mesenteric glands, at the other to the abdominal wall on the near side. The horse had been in the possession of his late owner for only three months ; it had suffered from abdominal pains, and latterly from acute Enteritis. The last attack was prolonged for about thirty-six hours, and was terminated by a very painful death. The small intestines were found strangulated by the cord-like formation. The mesenteric glands at this point were swollen, and contained pus.

Mr. PRITCHARD said the case appeared shrouded in much mystery, but he thought there was scrofulous disease of the mesenteric glands, and that the peduncle was a morbid growth originating from them.

ALFRED BROAD, *Hon. Sec.*

ONTARIO VETERINARY ASSOCIATION.

THE annual meeting of this Association was held in the Ontario Veterinary College, Toronto, on December 21st, 1882.

There was the usual attendance of members from all parts of the Province, also some from the United States.

The PRESIDENT (Mr. Elliott) in his opening address referred to the advancement of the profession in Canada, and citing as proof of the confidence of the public in its members, that not a dollar of the funds of the Association had to be expended in defending them in the law courts. He expressed the opinion that a benefit society, in connection with the Association, would be appreciated by its members, and closed his remarks with a well-merited eulogium of the Ontario Veterinary College.

The minutes of the last meeting were then read and confirmed, and the Secretary's and Treasurer's reports received and adopted ; these showed the finances of the Association to be in a healthy state.

Dr. DUNCAN moved, seconded by Mr. Wilson, and supplemented by very complimentary remarks by Professor Smith, that in view of the great services rendered to the veterinary profession by G. Fleming, Esq., F.R.C.V.S., through his valuable contributions to veterinary literature, through his exertions in the passage of the Veterinary Surgeons Act of 1881, and in other ways, therefore be it—"Resolved, that the Ontario Veterinary Association, on behalf of Colonial practitioners, records its high appreciation of the labours of Mr. Fleming, and requests its Treasurer to forward the sum of twenty-five dollars as a contribution towards the testimonial about to be presented to that gentleman, in acknowledgment of these services." The resolution was carried unanimously.

Mr. COWAN moved, seconded by Mr. Coleman, that the Association having learned with pleasure of the honour that had been conferred on Professor Smith, Principal of the Ontario Veterinary College, by electing him an honorary associate of the Royal College of Veterinary Surgeons, desire to express its appreciation of the honour conferred on the respected Professor of the Ontario Veterinary College, and through him on the veterinary profession on this continent.

Dr. DUNCAN, in addressing the meeting, expressed the hope that increased interest would be taken in the meetings, and that members should regularly read and discuss papers at each meeting.

Messrs. Rogers, Cowan, and Sweetapple agreed to read papers at the next meeting.

Mr. HINMAN gave an interesting account of a peculiar case in his practice.

Attention was called to a party advertising illegally as a veterinary surgeon, and the Secretary was instructed to notify him to discontinue so doing.

Some matters relating to the tariff of fees, etc., were then discussed, and several new members were duly elected.

The election of office-bearers for the ensuing year then took place, with the following result :—Mr. Elliott, President, re-elected ; Mr. Coleman, first Vice-President ; Mr. O'Neil, second Vice-President ; Mr. Sweetapple, Secretary ; Mr. Cowan, Treasurer ; Messrs. Hamilton and Hinman, auditors ; Messrs. Hinman, Sanderson, Cæsar, Hamilton, Wilson, Logan, Steele, and Grange, Directors ; Professor Smith, Honorary Director.

Moved by Mr. Wilson, seconded by Mr. O'Neil, that the sum of 25'00 dols. be appropriated for a medal to be competed for by the students of the Ontario Veterinary College at the spring examinations.

The meeting then adjourned until the spring.

ROYAL AGRICULTURAL SOCIETY.

AT the monthly council meeting of this Society, held on February 7th, the Hon. W. Egerton, M.P., reported that he had been elected chairman for the year. The Committee had received the following report of the examiners appointed by the Royal College of Veterinary Surgeons to award the Society's veterinary prizes and medals :—

“GENTLEMEN,—We, the examiners appointed by the Council of the Royal College of Veterinary Surgeons to examine the candidates for the veterinary prizes so liberally offered by the Royal Agricultural Society, have the honour to report that three candidates came forward, and they so far acquitted themselves to the satisfaction of the examiners that they were considered eligible to enter upon the written or final portion of the examination. We award out of a possible 1,500 marks, to—

Mr. W. A. Edgar, Dartford ...	...	...	...	1,145
Mr. A. H. Archer, Dunstable ...	...	...	...	885
Mr. J. B. Gresswell, Louth ...	...	...	...	820

“We therefore recommend that the first prize be given to Mr. Edgar ; second, to Mr. Archer ; third, to Mr. Cresswell.

“Although these candidates have obtained the above number of marks, we were sorry to find in the oral examination, that their knowledge of the subject of grasses, and their influence in the production of disease—which we thought it desirable to test—was of a more limited character than we had expected. We have the honour to be, Gentlemen, your obedient servants,

“ (Signed) { WILLIAM DUGUID,
 { THOMAS WALTER MAYER,
 { WM. ALSTON EDGAR.”

In consequence of the paucity of candidates, and the small interest apparently felt by the veterinary profession in the examination for prizes offered by the Society for the encouragement of the study of cattle pathology, the Committee regretted to have to recommend the withdrawal of the offer of these prizes in future ; but they recommended that the silver and bronze medals of the Society be offered to the two students who may pass the best examination in the pathology of cattle, sheep, and pigs at the Diploma Examination of the Royal College of Veterinary Surgeons. A letter had been received from Mr. W. A. Edgar, advocating the institution of experiments as to swine-fever, in continuation of Pasteur and Klein's investigations, but the Committee did not at present intend to make further investigations.

Mr. J. MARTIN asked whether the attention of the Committee had been drawn to the disease known as “pink-eye,” which he understood was raging in Yorkshire and some other parts of the country ?

Mr. DENT said he did not think that the disease prevailed generally in Yorkshire ; but in Northumberland, Durham, and the north of Yorkshire, in many colliery stables it was raging ; and it had become so serious that the Contagious Diseases Committee for the West Riding had recently called the attention of the Privy Council to it. Some people imagined it to be a disease imported from America, but he was told by the manager of the horses belonging to the North-Eastern Railway Company that it was not a new disease, but one which had been in existence for many years. Certainly in the North of England it had been very virulent, and had caused great losses. Mr. Dent added that he regretted very much the withdrawal of the prizes offered as an encouragement to veterinary students, but it seemed

perfectly absurd that the Society should annually give £50 in prizes, in addition to the expense of the examination, when there were never more than four candidates.

Earl CATHCART said that in the neighbourhood of Northallerton very considerable anxiety prevailed on the subject of the disease in question.

Mr. MARTIN said that personally he knew nothing whatever about the disease, but he was informed that it was a virulent form of Influenza. It appeared to attack the mucous membranes of the throat, then the head swells and the eyes take a deep pink hue, and the lungs become affected.

Mr. DENT said that if the horses attacked by the disease were not properly treated at once, there was great danger of death ensuing.

Professor SIMONDS observed that the disease commonly designated "pink-eyes" was so called because the membrane assumed a pink hue. That was an Americanism, and he was sorry that it had been adopted in this country. The disease was nothing more than Influenza, and the only peculiarity with reference to this visitation was that it had assumed an epizootic character. There were some doubts as to whether it was a contagious disease, but perhaps it might be safely considered that under certain circumstances it spread from one animal to another. It was a disease which did not affect cattle or sheep, but only horses. Horses were of course rendered very susceptible to the disease where they were placed in unhealthy situations, such as pits ; and in districts such as Newcastle, there were in operation many causes of a nature calculated to produce the disease. In a case of this affection farmers should take good care that no depletive remedies were used. The case required to be treated—if he might use the simile—rather by the cook than the doctor. The remedies administered should be of an invigorating character. If care were taken to keep the animals in healthy situations, diffusible stimulants given, and depletive remedies not used, we should hear very little of the disease.

The report of the Committee was then adopted.

EXAMINATIONS OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

AT the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held 13th January, 1883, the following students from the Royal Veterinary College were admitted members of the profession :—

Mr. T. A. Smith	...	...	...	Oakley Square, London.
„ Walter Smithers	...	...	...	Finsbury, E.C.
„ R. W. Raymond	...	...	...	Longford, Ireland.

The following students passed their "Second Examination" on the 11th and 12th January :—

Mr. A. Gill.	Mr. *H. M. Singleton.
„ C. F. H. Skelton.	„ T. H. Higgott.
„ H. L. Somers.	„ *T. E. Baker.
„ †W. B. Snowball.	„ H. Smith.
„ L. Burghope.	„ W. Brown.
„ *C. W. Heinemann.	„ W. S. Reid.

The following students passed their "First Examination" on 8th, 9th, and 10th January :—

Mr. W. A. Collins.	Mr. W. F. Phillpot.
„ W. Revill.	„ R. Simpson.
„ W. E. Morgan.	„ F. A. Simpkin.
„ J. B. Exley.	„ A. Jones.
„ H. B. Maples.	„ C. W. Marshall.
„ *G. E. Fryer.	„ F. E. Meek.
„ F. Wright.	„ H. B. H. Chambers.
„ J. C. Coleman.	„ R. E. Brundell.
„ *F. W. Leigh.	„ G. W. M. Haydon.
„ J. Farmer.	„ *F. T. Harvey.
„ T. B. Arnald.	„ H. B. Arnald.

EXAMINATIONS OF THE R.C.V.S. IN SCOTLAND.

AT the several meetings of the Scottish Section of the Court of Examiners of the Royal College of Veterinary Surgeons, held in Edinburgh on the 17th January, 1883, the following students passed their "Final Examination," and received the Diploma :—

Edinburgh Old College.

Mr. J. A. Braddell	...	...	...	Mallow, Co. Cork.
„ Samuel Bailie	...	...	...	Ballynahinch, Co. Down.
„ James Anderson	Methven, Perthshire.

Edinburgh New College.

Mr. T. A. Mitchell	Leith.
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The following students passed their "Second Examination" on the 16th January :—

Edinburgh Old College.

Mr. Thomas Wooff.	Mr. Wm. Franklin.
„ H. Gilsthorpe.	„ John Hackett.
„ Chas. Nowell.	

Edinburgh New College.

Mr. *A. H. Spinks.	Mr. F. W. Kendall.
„ *R. H. Settle.	„ *Josh. Faulkner.
„ A. E. Darwell.	„ T. J. Davies.
„ Chas. Pringle.	„ P. A. Porteous.

The following passed their "First Examination" on the 15th January :—

Edinburgh Old College.

Mr. W. Tindall.	Mr. Arthur James.
„ Alexander Davidson.	„ J. Soga.
„ A. Smith.	„ J. Riddock.
„ John Gemmell.	„ F. Brown.

Edinburgh New College.

Mr. T. Watson.	Mr. A. G. Corner.
„ A. W. Middlehurst.	„ F. C. Golden.

Glasgow College.

Mr. R. S. Mitchell.	Mr. D. M. Gray.
„ J. G. Deans.	

* Marked thus passed with Great Credit.

† Marked thus passed with Very Great Credit.

Parliamentary Intelligence.*House of Commons, February 19th.***FOOT-AND-MOUTH DISEASE.**

MR. BIRKBECK asked whether upwards of 300 head of cattle arrived at Liverpool on the 31st of January in the steamship *Kansas*, all affected with Foot-and-mouth disease; and whether, taking into consideration the serious losses incurred by tenant farmers from Foot-and-mouth disease, the Government would prohibit the importation of live stock from foreign countries where disease was known to exist.

Mr. MUNDELLA stated that the steamer *Kansas* arrived at the foreign wharf, Liverpool, with a cargo of 313 cattle and 298 sheep on the 31st inst. The inspector of the Privy Council at Liverpool certified 219 of the cattle as affected with Foot-and-mouth disease, and the sheep with the Scab. The cargo was landed at the cattle wharf, Birkenhead, and slaughtered. It was not the intention of the Privy Council to prohibit the importation of live stock from foreign countries where disease was known to exist. He was advised that there was no country in the world where disease, as defined by the Act, was not believed to exist, and prohibition would be a direct violation of the principle of the Act, that which distinctly provided for the slaughter of animals at the port of debarkation coming from countries where disease existed.

In a debate on the Address, allusion was made to the present agricultural depression and its causes, among which contagious diseases was included.

Mr. MUNDELLA, addressing himself to the question of the importation of foreign cattle, admitted that the commercial and manufacturing interests of the country had no expectation that trade would be greatly improved until agriculture had recovered from its present depressed condition. It was impossible that a loss of fifty millions sterling could go on year after year without being felt by all branches of industry, and his own belief was that if there were three years of agricultural prosperity the general trade of the country would be enormously improved (hear hear). What would be the effect of the prohibition of importation of live animals into this country? In 1881 we imported live foreign animals to the number of 1,278,891, and to the value of £8,526,000; and in 1882 we imported 1,483,761, of the value of £9,272,000. If that was abstracted from the consumption of the country, the price of meat would be enormously increased; he believed it would not be less than from 2d. to 4d. per pound. In 1880-81 the importation of fresh meat was 8,012,000 cwt., and that had fallen off nearly a million cwt.; and what the hon. gentleman proposed to do was to cut off the supply of live cattle from all infected countries. Now, he had always understood that one of the greatest boons which had been conferred by the Legislature on this country was the passing of the Contagious Diseases Act of 1878, but hon. members opposite spoke of it as if it were quite valueless. With regard to the various diseases, there had been no Cattle Plague since 1878, no Sheep-pox, and no Pleuro-pneumonia, for which the Act had specially been passed. In 1877 there had been 2007 outbreaks of Pleuro-pneumonia, and 5000 animals affected, and these had been steadily coming down every year, until in 1882 there were only 494 outbreaks and 1209 animals affected. He hoped that very soon Pleuro-pneumonia would be stamped out. As to Foot-and-mouth disease, this country was free of it in January, 1880, but soon after that three diseased cargoes came in. But 1880 was an exceptionally good year, the outbreaks of Foot-and-mouth disease that year being 1461, and 32,378 animals affected. In 1881 the outbreaks were 4833, and the number of animals affected was 183,000; in 1882, which was nearly as good a year as 1880, the

number fell from 4800 outbreaks to 1970 outbreaks, and 37,950 animals affected. Millions of sheep had been lost from Fluke, and millions more must have been lost from that disease but for what had been done by the Privy Council to check it. Fluke was not an imported disease, and it was not fair, therefore, to attribute everything to disease that was imported. The Privy Council had done all they could to check the importation of disease of any kind. They had had the courage, whenever they found that a country was diseased, or had reason to suspect that it was diseased, to place that country under the slaughter provisions, and at the present moment there were only two countries—Canada and the Scandinavian islands—whose cattle were not slaughtered at the port of debarkation. He was not so sanguine about stamping out Foot-and-mouth disease as he had been, and there were others of the same opinion, but the Government had been guided by the Act and the practical wisdom of those who were conversant with the subject. They had done their best, and would continue to do their best to stamp out the disease (hear, hear). The evidence given to them went to show that breeding had not been stopped by Foot-and-mouth disease, and, so far from there having been a falling off in the number of cattle, the fact was that the number had increased since 1867 from about 4,900,000 to about 6,000,000 (hear, hear). There had been an increase since last year, and the falling off had been almost entirely in sheep. In dealing with disease, the Government did not want to stop the importation of cattle. What they wanted was that everybody should send us as many as they pleased, but that they should be slaughtered at the port of debarkation. What the hon. member for Mid-Lincoln wanted was that they should be slaughtered at the port of embarkation, which was a very different thing. It would result in creating famine prices, and prove a very serious thing for the consumers in this country (hear, hear).

Army Veterinary Department.

Gazette, January 30th.

Veterinary Surgeon R. F. Frost to be Veterinary Surgeon, First Class.

Obituary.

THE registrar has to report the death of Thomas Adamson, of Darlington, who graduated in April, 1856.

Notes and News.

EFFECTS OF RAREFIED AIR.—Dr. A. Fraenkel has read a paper before the Physiological Society of Berlin on certain experiments which he has made in conjunction with Dr. Geppert to determine the influence of a rarefied atmosphere upon the animal organism. In addition to the general phenomena and the behaviour of the gases of the blood in animals which breathe in a rarefied atmosphere, investigations were made as to the influence of rarefaction upon blood pressure. The blood pressure was read off upon a manometer, one arm of which communicated through the side of the box (in which the animal was kept exposed), with an artery of the animal, while the other arm was in communication with the general cavity of the box. When the atmospheric pressure sank to half the normal amount, the blood pressure showed no change; when the pressure sank to a third of an atmosphere, a small rise took place in the blood pressure. This rise, however, passed away during

the sleep that occurred under the influence of this amount of rarefaction, and the pressure became normal again. When the air was still further rarefied till the pressure was as low as one-quarter of an atmosphere or less, the pulse became weak and small, the blood pressure went down, and then if normal quantities of oxygen were not quickly restored, the heart stopped. The chief gain of the whole investigation was the definite determination of the influence of a rarefied atmosphere upon metastasis (*Stoffwechsel*), upon which question only few and contradictory *data* exist. The investigators agreed in general with M. Paul Bert in regarding the effect of a rarefied atmosphere as inducing a chemical change which was brought about by a diminished supply of oxygen. The amount of urea secreted in the twenty-four hours was taken as the measure of metastasis. During a lengthened period of observation on those days in which the animals thus experimented upon had the same amount of food, the quantity of urea secreted in the twenty-four hours remained constant. Nor was there any alteration in the amount of urea when they were exposed to variations of pressure down to half an atmosphere. On the diminution of the pressure to one-third of an atmosphere, at and under which pressure the amount of oxygen contained in the blood is markedly diminished, and the animal falls into a deep sleep, there was, after this degree of rarefaction had lasted several hours, a very remarkable increase in the amount of urea. This increase did not occur till the next day in the case of animals which had been fed, whereas it occurred on the day of the experiment in the case of those animals which were kept hungry; but it lasted in all cases over a couple of days after the experiment. Dr. Fraenkel's belief is that the rarefaction influences the metastasis, by depriving the blood and the tissues of some of their necessary oxygen, and that this want of oxygen entails an excessive destruction of albumen, the constituents of which are in part deposited as fat and in part are changed into urinary products. Besides the increased elimination of urea, fatty degeneration of tissues (*e.g.*, of the heart) is observed when the system is in want of oxygen.

TURCOMAN HORSES.—In his recently published work, "The Merv Oasis," Mr. O'Donovan gives some account of the horses to be found in the Turcoman steppes (Vol. II., pp. 332-333). His estimate of the pace and staying powers of these animals does not altogether agree with the glowing statements of some other travellers. Mr. O'Donovan remarks that "a first-class Turcoman horse, after a month's special training, and with ample and special food, will go from sixty to seventy miles a day, and keep up that pace for an apparently unlimited period." But his speed, as compared with that of a high-class European horse, is poor. Generally speaking, the Turcoman horse is very leggy, but extremely graceful of limb. He has a long and narrow chest, and the same may be said of his shoulders. His head, though inclining to be large, is usually handsome, but his neck is unsightly. It is slightly concave from above, giving to the horse a strange likeness to a camel. At the point of junction with the head the neck is apt to be very constricted, and this gives the animal a half-strangled appearance. But the author says that these deformities disappear in the produce of horses crossed with pure Arabs. It may be added that Mr. O'Donovan's observations on the merits of Turcoman horses were confirmed by the estimates of the natives themselves. Some fine horses are to be seen at times on sale at the bazaars, at prices varying from £30 to £60; but, as a rule, animals of this value are not sent to the bazaar, few of its frequenters being willing or able to invest for them such serious sums. The price of a Turcoman horse is generally a fancy one; and asked not so much with reference to beauty or physical development, as in consideration of some wonderful exploit which the vendor declares he has performed, of swiftness or staying power. As, however, the Turcomans are too well acquainted with each other's powers of mendacity to place much

confidence in such a statement, the really excellent animals are kept for their owner's own use, or else purchased after a trial. There are not generally more than half a dozen horses exposed for sale on any given day; but the numerous frequenters of the bazaar, almost all of whom are mounted, are ready to part with their horses should an adequate price be offered. Asses are generally forthcoming in great numbers; and, so far as Mr. O'Donovan's experience goes, they appear in no wise larger or stronger than the humblest specimens of their kind at home in Europe. It is true that the large white ass is used in Persia by persons of distinction, especially by the Moullahs, and that they rival horses in price, but none were seen by Mr. O'Donovan at Merv.

THE LATEST SPHÆRO-BACTERIUM.—The *Chicago Medical Journal and Examiner* publishes the following: Drs. Daniel R. Brower and Lester Curtis were in attendance upon a lad affected with perfectly typical tetanus, resulting from a wound in his hand inflicted by the explosion of a toy pistol. They determined to examine his blood with the microscope, and, having done this, discovered that it was swarming with organisms precisely similar to the sphæro-bacteria recognized in the ill-conditioned pus removed from an abscess communicating with a joint. The blood of a horse affected with tetanus was then placed by them under the same objectives, and in it also similar organisms were discovered. Not content with pushing their investigations to this point, they proceeded to examine the mother of the boy who was their patient, and also another of her children; and, to their surprise, found in the blood of each an abundance of the same germs. A neighbouring frog-pond was finally searched, and found to furnish masses of the same bacteria. The boy recovered from his tetanus, and was taken before a body of scientific gentlemen in this city, where his blood, still swarming with bacteria, was placed on slides and examined by a dozen or more physicians and others of unquestioned discrimination and veracity. All were able to recognize the existence of the bodies to which their attention was directed.

VETERINARY SCHOOLS AND TEACHERS.—The Argentine Republic has established a Veterinary School at Buenos Ayres, and installed as its Director, M. Tombear, and Professors MM. Lambert and Bernier—all Belgian Veterinary Surgeons.

Professor and Councillor of State, Dr. Raupach, has been appointed Director of the Veterinary Institute, Dorpat, Russia, in place of Professor Unterberger, who retires.

The Turkish Government has engaged a Belgian Professor to give a complete course of instruction in theoretical and practical veterinary medicine, in the Imperial School of Medicine at Constantinople.

The trustees of the University of Pennsylvania have received the sum of ten thousand dollars for the establishment of a Veterinary College in connection with that institution.

VETERINARY MEDICINE IN SOUTH AUSTRALIA.—We are gratified to learn that His Excellency Sir W. F. Drummond Jervois has appointed Mr. Thomas Chalwin, M.R.C.V.S., Government Veterinary Surgeon for South Australia, the announcement having appeared in the *Government Gazette*. This is, we understand, the first real appointment of the kind in the Australian Colonies, and it is to be hoped that, in their own great interests, the other Colonial Governments will follow this example, and select men who, like Mr. Chalwin, can advise them in all matters relating to the prevention and suppression of disease in animals.

VETERINARY INSPECTOR FOR DURHAM.—The Executive Committee of Magistrates for carrying out the provisions of the Contagious Diseases (Animals) Act, at their meeting on January 25th, elected Mr. J. E. Peele, M.R.C.V.S., Chief Veterinary Inspector for that County.

Correspondence, etc.

A SUGGESTION.

DEAR SIR,—I have long noticed what a struggle the friends of reform in our Council have to make, in order to make the slightest advance in the path of progress. Every suggestion from them seems to meet the most determined hostility from those who have some paltry self-interest to guard or prejudice to foster.

I don't know that we have any right to complain, or at least none to be surprised, seeing that this has been the experience of all corporate bodies in their efforts to secure conditions that render progress possible. One thing I should like to direct attention to, is that we have the matter in our own hands.

Next May we shall have an opportunity of giving practical expression to our opinion of the policy pursued by certain members of the Council. A reference to the reports of one or two meetings will enable any one to distinguish who are the friends of progress, and therefore worthy of support. If those gentlemen who will be candidates for office for the first time this year, and whose views can be known only to a few, would follow the example set by Mr. Simcocks, and issue an address, however short, giving an indication of their views on current topics, the profession could with certainty express its desires. This method is adopted both in parliamentary and municipal elections with the best results, and I do not see why it would not secure for us similar advantages.

I intended to say something about the juvenile Edinburgh "Professor," but "Asmodeus" has handled him so well that little more need be said. His so-called "Address," and his impertinent attack upon Mr. Cunningham, are beneath contempt. I do not so much blame the lad as the Principal of the College, who has hitherto proved himself so good a friend, for allowing such trash to find utterance in his presence. I hope the sister profession will make room (a very small space will suffice) for him as quickly as possible.

Yours truly,

Newbury, Feb. 12th, 1883.

J. FRASER, F.R.C.V.S.

IS PUPILAGE TUITION DESIRABLE?

SIR,—Some months ago I could not have believed there was any chance of Mr. Thos. Greaves and myself agreeing upon anything connected with pupilage. Now I fancy we are very near that point—so near that I will quote from that gentleman's letter certain statements which I accept *verbatim et literatim*.

"1st. *We are agreed* that a higher scholastic education than formerly has become necessary, and that the test should be applied fairly and firmly by an independent examining body in a uniform manner.

"2nd. *We are agreed*, however necessary it may be that a man should be well educated to make him a gentleman, such education alone cannot make him a clever veterinary surgeon.

"3rd. *We are agreed* that lectures, however well delivered and however profound, coupled with much study and book learning, of themselves cannot make him a clever veterinary surgeon.

"4th. *We are agreed* that practical tuition is not only desirable, but is actually essential, if the character of our profession and its public usefulness are to be maintained."

"5th. *We are agreed* that it is, comparatively speaking, a very costly matter to become a veterinary surgeon, especially if the youth is obliged to undergo a term of pupilage, for which he pays £100.

"6th. *We are agreed* that a gentleman having had a diploma granted him, and who commences business on his own account, if he frequently makes gross mistakes, diagnoses incorrectly, treats his cases incorrectly, and that his sick and lame cases nearly always fail to recover, he soon gets the character of possessing an inadequate practical knowledge; he stultifies his diploma, his teacher, his college, his profession, and his examiners.

"7th. *We are not quite agreed* in what manner he should obtain this inestimable knowledge, which is of supreme importance to him in success in after life."

On this last remark, the truth of which I accept, I only observe that it is of no importance in what manner the knowledge be obtained, if only we ensure that it is obtained. *We do not* ensure it by insisting upon a man paying £100 to a practitioner, or by insisting upon his residence with a good veterinary surgeon. *We do* ensure his possession of adequate knowledge by refusing to give him a diploma until he gives proof of it—in other words, by examination.

Finally, Mr. Greaves says: "I believe that the two parties, and, in fact, the whole profession, could be brought to see the wisdom and fairness of carrying out Professor Whalley's motion, with Mr. Cartledge's suggestion added"—viz., that the oral precede the practical examination; if the student fail in the oral he cannot go up for the practical, but if he succeeds in the oral and fails in the practical he shall not again be examined on any of the oral subjects he may have passed in; the student failing in his practical examination shall be obliged to go to some veterinary surgeon to gain the knowledge he lacks, and to bring with him when he comes up for examination again a certificate proving that he has been so employed."

Now, sir, after all the time and money and temper that has been wasted upon this subject, it seems to me that the Council rejecting such a proposal is not really representative. I feel certain the attention of the profession has only to be directed to this compromise to ensure its being adopted. With it we inaugurate a reign of peace, in which time may be found for the Council to attend to smaller but essential matters. Acts of Parliament and Royal Charters we have had enough of. Let us descend from Imperial legislation, and do a little bit of quiet parochial work. Let the practitioner and the professor once again work together and respect each other's efforts. Let science and practice be permitted to show they are not antagonistic.

I really cannot see any objection to legislate on the grounds suggested by Mr. Greaves; all that is necessary is that the motion and rider should be put into grammatical and perspicuous English.—Your obedient servant,

WILLIAM HUNTING.

CREDIT WHERE DUE.

SIR,—In the February number of the Journal I have read a report of the annual meeting of the Irish Central Veterinary Medical Society, in which Mr. Malcolm, when giving a synopsis of the work accomplished by that body, is made to say, in referring to Mr. Simcock's election as member of Council of the R.C.V.S., that "This election, I need not remind you, was due almost entirely to the effort of our Society." Well, having regard to the real facts, I cannot see how he makes this out.

The North of Ireland Veterinary Medical Society is not unmindful of the valuable services and hearty co-operation of the Irish Central in using influence in securing the return of our nominee, but to say that this consummation was entirely, or almost entirely, due to the effort of the Irish Central, is going just a *little* too far.

It will be remembered that the Lancashire, Liverpool, Yorkshire, Midlands, Eastern Counties, and the North of Ireland Associations, issued a joint circular, which was sent to all registered members of the College in the United Kingdom, soliciting a vote in favour of their respective nominees; and I may here remark that in this *vis unita fortior* has been fully exemplified.

The secretaries of each of the above associations had districts apportioned, and which were canvassed by means of these circulars, the Secretary of the North of Ireland Association having for his share all Ireland, all Wales, and seven English counties. Other circulars and letters were issued under the auspices of this Association, and other influence exercised by it, and yet we are told that Mr. Simcocks' election was almost entirely due to the effort of the Irish Central.

I am happy to say there were potent auxiliaries in operation, which culminated in our nominee taking premier place at the election.

1. The professional popularity of the candidate himself.
2. The liberality of the profession in recognising the claims of an Irish representative on the Council Board.
3. The influence of the Veterinary Medical Associations, not forgetting the Irish Central.

In conclusion, I would say that the words of the New Testament are here apropos: "Rendez à César ce qui appartient à César."—Oui, le crédit y compris.—I am, sir, yours, etc.,
A MEMBER OF THE NORTH OF IRELAND
VETERINARY MEDICAL SOCIETY.

A LITTLE OVERSIGHT.

SIR,—The writing ink we use in daily life is probably too small a matter to give us much concern, and yet, like the nail in the shoe, it may be of great importance hereafter. What should we think of a picture which had cost about £1000 if after a very few years its colour faded and its beauty was lost to the observer? Yet this is the case with the signatures upon our diplomas, for which we have worked so hard and sought so anxiously to obtain. The names of four out of six professors on my own "ticket" are illegible in less than six years, and the nearest "existing practitioner" displays in his office the diploma and other certificates of a deceased gentleman. It is true they are a little bit "skyed," but even a M.R.C.V.S. could not read the faded ink without the closest scrutiny, and the public generally are led to believe that these **are** the proofs of his having "passed the college." May I suggest that the signatories to such important documents should be provided with ink such as is used in solicitors' offices, etc.—Yours, etc.,
HAROLD LEENEY.

PROFESSIONAL HUMBUG.

SIR,—As a veterinary surgeon I like my profession, and endeavour to do my duty; but I do not like the humbug by which we are surrounded. Why should I, as a qualified practitioner, have every "Boxing-day" a troop of drunken men filing into my yard for a Christmas-box, simply because they bring horses to my forge? and this Christmas gift they demand as a right—indeed, if it does not come up to their expectations, they will threaten to have the animals removed to some other forge; and we all know from experience if the man is dissatisfied, as a matter of course the master follows suit. Why, again, should I be told that Mr. A. or B., another practitioner in the city, keeps a "barrel of beer" in the surgery or "consulting-room," and every time I take "master's hoss" I get a glass? And then, why, again, at Veterinary

Medical Associations should I hear the eternal cant of "our noble profession"? Surely with such existing evils as these we ought to cleanse ourselves from the filth that surrounds us before we preach a doctrine, the effects of which must be pernicious to our interests and to our social position. Mr. Jones, the butcher of my city, and Mr. Smith, the draper, have each supplied his Royal Highness (God bless him) with the ingredients for a banquet, or something in the shawl or drapery line, and up go the Prince of Wales's feathers over the shop door, to be wonder-stared at by gaping rustics; but when his Royal Highness visits my city in his own carriage and with his own horses, and they are at livery at a professional brother's, we do not expect to see him follow in the line taken by tradesmen. But in this I am disappointed, for in a few weeks up go the huge Prince of Wales's feathers, as big as the centre design in Wombwell's show. Again, I ask an eminent horsedealer in my neighbourhood the reason his animals do not visit my forge as usual; it is soon given—"When my horses, with your shoes on, go to Mr. A. for examination, the shoes are taken off and the feet cut about; but when his own shoes are on it is not considered necessary even to take them off;" and I may add that my professional brother stands higher than myself, he having purchased the "goodwill" of an old and extensive concern, whilst I am of much more recent importation. All this is well enough in its way; but why do we at association meetings flatter ourselves on the enormous strides taken of late years by the "veterinary profession"—that is the usual term we hear and see published—when we ourselves know that the working of the profession is "rotten at the core"? When such things as these have ceased to exist, we may congratulate ourselves on a brighter and better state of things; but until that time comes round, although we show to the public "an outside bravery," something is certainly "rotten in the state of Denmark."—Yours, etc.,

EAST ANGLIA.

VETERINARY ADVERTISING.

DEAR SIR,—When the Royal College of Veterinary Surgeons granted to certain practitioners of the veterinary art the higher diploma of Fellow, was it intended that this distinction should be printed in full on every label that leaves certain veterinary establishments? or does it savour very highly of the quack we pretend to ignore? I enclose a label a sample of this kind of advertising:—

"Prepared by —, Veterinary Surgeon, Fellow of the Royal College of Veterinary Surgeons."

I enclose you a clipping from a Norfolk paper of a very interesting case. Now, whether the veterinary surgeon spoken of has taken advantage of the Registration Act I cannot say, but we have no such recognised practitioner, the gentleman being known to me as the keeper of a public-house in the town dedicated to St. Bloater:—

"SINGULAR OCCURRENCE.—A remarkable incident, and scarcely without a parallel in veterinary practice, occurred here last week. On Monday, the 29th ult., Mr. Last, veterinary surgeon, was consulted by Mr. Thacker, milkman, Regent Road, relative to the condition of one of his cows. The animal, which was about six or seven years of age, had up to the day in question been in apparent good health, yielding its customary amount of milk, and on being seen by Mr. Last, that gentleman pronounced it to be suffering from heart disease. He accordingly applied suitable treatment, but on visiting his patient on the following and subsequent days, found the animal very much worse, and on the Thursday, the cow being then in a state of prostration, and in a dying condition, he advised its being killed. The symptoms exhibited by the animal having been unusual, especially taken in conjunction

with its previous healthy state, Mr. Last decided upon holding a *post-mortem* examination. As the result of this, it was discovered that a piece of iron wire had embedded itself in the left ventricle of the heart to a depth of three inches, about half-an-inch more of the wire projecting outside the organ. For the wire to have made its way into the animal's heart, as described, it must have been conveyed in the first instance into the system in feeding, and then in course of time have worked its way to the spot where it was found. The case is one of the most singular that has been recorded in veterinary practice, the only instance of a similar character being that of a bullock, the heart of which had been penetrated by a needle. The occurrence is the more remarkable, as, in this instance, the animal had up till Monday, when Mr. Last's services were called in requisition, been in its usual good health. Mr. Last has prepared a diagram of the animal's heart, showing the course taken by the wire, and the depth of penetration, which he will be happy to show to any one interested."

The diagram spoken of would no doubt be a great attraction behind the bar to the thirsty visitors. NORFOLK.

A REPLY.

SIR,—It was with feelings of shame that I perused the letter of your anonymous correspondent "Asmodeus," in this month's (February) number of the VETERINARY JOURNAL. That any member of our profession could be found to lend himself to the production of such a scurrilous document, as the letter in question undoubtedly is, must be regretted. Professor McFadyean is doubtless sufficiently well able to defend himself from the cowardly and venomous attack made against him (if he does not elect to treat it with the contempt it deserves), and his well-known abilities as a master of the subject he teaches are not likely to be under-rated on account of "Asmodeus'" brilliant effusion.

What I more particularly wish to draw attention to is the injustice "Asmodeus" does to those students who have graduated from the Dick College since Professor McFadyean has held the anatomy professorship. He insinuates, or I may say asserts, that these students were only half taught the subject in question (anatomy). Facts speak for themselves. Let "Asmodeus" refer to the VETERINARY JOURNAL for June, 1880. There he will find a list of students from the Dick College who had just passed their second examination. For this examination *twenty* students from the Clyde Street School were examined. *One was rejected and nineteen passed.* Out of these nineteen *no fewer than thirteen were bracketed as having passed with "Great Credit," and one with "Very Great Credit."* The examiners were Professor Robertson, now principal of the Royal Veterinary College, and the other the talented translator of Chauveau's Anatomy. Possibly the students of "twenty or thirty years ago," one of whom I should presume "Asmodeus" to have been, could have eclipsed *this* performance, which is only *one* example of what the Dick College students have done and can do under Professor McFadyean. Every student from this school is *compelled* to dissect the whole horse *carefully* at least once, and to produce a certificate of having done so before he is allowed by the principal to present himself for examination, and I honestly believe that this regulation is carried out to the letter. As to the practical demonstrations that "Asmodeus" thinks so much of, he may rest assured that the freshmen who listened to Professor McFadyean's inaugural address will get plenty of them during their curriculum. Few professors would go to the trouble of freezing a whole horse, and making sections (by saw) to show the organs *in situ*—a thing which Professor McFadyean has done. If a student does not succeed in the important subject of special and comparative anatomy, practically as well as theoretically, it is certainly not Professor McFadyean's fault. If "Asmodeus" follows out his

own suggestion that some one should "look after" the Professor and instruct him in "what to teach and how to teach it," he will soon discover that his office is a sinecure. Professor McFadyean is the senior of any other teacher of the same subject at either London, Glasgow, or Edinburgh schools, both as a member of the profession and as a lecturer. Probably this is new information to "Asmodeus," but a reference to the various college teaching-staff lists and the register of the R.C.V.S. will verify my statement. If "Asmodeus" had chosen to divulge his name perhaps the motive for his splenetic utterances would not have been difficult of solution.—Yours, etc.,

Malpas, 14th February, 1883.

J. R.

(Other communications having reference to Professor McFadyean's address have come to hand, but space cannot be spared for their insertion.)

AN APPEAL.

DEAR SIR,—Will you kindly allow me through the pages of your Journal to make an appeal to my professional brethren on behalf of the widow and family of a veterinary surgeon lately deceased? The lady to whom I refer is the widow of an Irish veterinary surgeon—Mr. J. Brosnan—and she is left with eight children, in very indifferent circumstances, and without any means of supporting her family.

I feel that the freemasonry which pervades the minds of the members of our profession will not permit this appeal to be made in vain, and I shall be very happy to receive subscriptions, and will acknowledge receipt of same in the Journal.—I am, yours faithfully,

THOMAS WALLEY.

Royal Veterinary College, Edinburgh, February 18th.

TO CORRESPONDENTS.

ASMODEUS.—With reference to the points you mention, an Existing Practitioner after registration, is in the same position as he was before registration.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from H. Leeney, Brighton; "East Anglia"; A. Broad, London; "A Member of the North of Ireland Veterinary Medical Society"; "Norfolk"; J. Sweetapple, Ontario, Canada; J. B. Wolstenholme, Manchester; "Eye Witness"; M. Chenier, Valence, France; W. S. Carless, Lincoln; "A Student"; W. Donald, Wigton; W. Broughton, Leeds; H. Thompson, Aspatia, N.B.; W. R. Raymond, A.V.D., India; J. Roberts, Malpas; J. Fraser, Newbury; W. Hunting, London; T. Walley, Edinburgh; "Asmodeus."

BOOKS AND PAMPHLETS: *A. Longhi and E. Tirinanzi*, Dizionario dei Termini Antichi, etc., Scienze Mediche e Veterinarie; *F. Quivogne*, La Science et la Discipline; *L. Voigt*, Vaccine and Variola; *F. Quivogne*, La Science et la Discipline pour les Vétérinaires Militaires; Nouveau Dictionnaire Pratique, etc., Vétérinaires; Bulletin et Memoires de la Soc. Centrale de Médecine Vétérinaire; *P. Toepper*, Die neueren Erfahrungen über die Aetiologie des Milzbrandes.

JOURNALS, etc.—*Lancet*; *Field*; *Journal de Méd. Vétérinaire*; *Deutsche Zeitschrift für Thiermedizin und Vergleichende Pathologie*; *Revue Vétérinaire*; *Der Thierarzt*; *Archives Vétérinaires*; *Recueil de Méd. Vétérinaire*; *Annales de Méd. Vétérinaires*; *National Live Stock Journal*; *Tidskrift för Veterinär Medicin och Husdjursskötsel*; *Live Stock Journal*; *Edinburgh Medical Journal*; *Wochenschrift für Thierheilkunde*; *Nature*; *L'Echo Vétérinaire*; *Medical Press and Circular*; *L'Echo des Sociétés et Associations Vétérinaires de France*; *La Clinica Veterinaria*; *Breeder's Gazette*; *American Veterinary Review*; *Proceedings of the Medical Society of Kings*.

NEWSPAPERS.—*Scotsman*; *Nottingham Daily Guardian*; *Leeds Mercury*; *Glasgow Citizen*; *The Country Gentleman*.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

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“PNEUMO-ENTERIC FEVER,” OR “PINK-EYE.”

BY CHARLES GRESSWELL, M.R.C.V.S., NOTTINGHAM.

A FEW observations on the epizootic disease commonly called “Pink-eye,” to which, however, the designation “Pneumo-enteric Fever” may, perhaps, more fitly be applied, will probably be considered appropriate and interesting at a time when the prevalence of the disease in Nottingham and other districts has lately been a noticeable phenomenon.

Isolated cases of this disease have, it is true, been seen here from time to time during the last eighteen months ; but it was not until December, 1882, that any serious proportions were assumed. During the middle of that month, some Russian ponies, which had recently arrived in the town, were found to be affected, and one or more died. From these, as a centre, the disease spread, at first manifesting itself amongst the horses occupying the other stables of the public-house yard in which the ponies had been quartered. The propagation of the disease from this yard to places two and three miles distant, I have been able most distinctly to trace. As an instance, I may mention the case of an owner of three horses employed to lead manure from the yard, one of his horses being visibly affected four days after exposure to the infection, another on the fifth day.

It may be mentioned that, in the majority of cases which I have attended, direct contact with other affected horses could be proved, and that the first outward symptoms were invariably manifested on the fourth or fifth day subsequent to that on which

this contact was known to have occurred. From the fact that in many instances where the existence of the disease was discovered, the temperature was observed to be elevated to 101° or 102° on the third day, it may be inferred that the period of incubation is to be considered as extending over three or four days. On the fifth day after contact, which may be called the second day of the disease, there may be observed a temperature of 103° to 104° , a pulse varying between 60 and 70, general dulness, irregular shambling gait, injected mucous membranes and tumefaction of eyelids, more or less pronounced in character. The appetite may or may not be markedly impaired. On the third day of the disease the symptoms are greatly exaggerated; the temperature may be as high as 105° , or even 106.5° ; the pulse 70 to 80, small, and in many cases scarcely perceptible; the mucous membranes purple or red. There is a discharge from the eyes, and frequently an opacity of the cornea is perceptible. Finally, accelerated respirations and total anorexia are to be noted. Extending from the third to the sixth day of the disease, more special symptoms, indicating, in all probability, extensive exudation into special tissues and organs, may be recorded. Amongst these, serious pneumonic symptoms, implicating large portions of one or both lungs (in some cases associated with pleuritic complications); enteric symptoms, including abdominal pain; intermittent action of the heart; extreme nausea; partial, or in rare cases total, loss of power in the hind quarters; violent diarrhoea; finally, though rarely, cerebral symptoms,—are most prominent; whilst death from asphyxia or collapse occurs. It is not, however, to be understood that the above characters are coexistent in all, or even the majority of patients. It seems that, as a general rule, the exudation takes place in sets of organs or tissues which may be considered to exhibit a co-ordination or similarity of functions; and where recourse is had to scientific treatment in the earliest stages, it may most emphatically be asserted that the onward course of the disease may be arrested, the severe symptoms prevented, and a more or less complete cure the favourable result.

A *post-mortem* examination invariably displays a characteristic congestion of the lungs, heart, or stomach. One or both

lungs may be thus congested, and as a rule hypertrophy of the heart is visible. In all the other parts affected there is an exudation of lymph, which is frequently especially marked in the submucous tissue along the whole course of the intestinal tract, between the folds of the peritoneum, and also in the brain and spinal cord.

Thus the name of Pneumo-enteric Fever has appeared to me an appropriate one, and I may be allowed to record my conviction that the disease is to be regarded as depending upon the presence in the blood of a specific virus, which produces in the first instance pyrexia, secondly, congestion of the heart, lungs, and stomach, and, finally, extensive infiltration, that is, exudation of the fluid portions of the blood into the most important organs of the body.

Horses in low condition, or otherwise debilitated, seem to be principally and most markedly affected. The disease, when appearing in strong horses, usually assumes a very mild form—the percentage of deaths is very small, only resulting in cases aggravated either by neglect, by being worked in the first stages, by bad treatment, by imperfect sanitation, or by a previously low condition of the animal due to other causes. Patients which have been treated at an early stage, and have had the advantage of good sanitary conditions, and a previously fair state of health, will very rarely succumb. The percentage of fatal cases should in such instances be very small.

In the most favourable cases, the temperature usually falls on the fifth day to about 103° , on the sixth to about 101° , being normal on the seventh. The gradual fall of the pulse is in about the same proportion. In less favourable cases the temperature will remain at about 105° for several days, finally, however, undergoing a rapid fall, with an almost equally sudden cessation of other symptoms. Where a fatal result is to ensue, the heart's action and the function of respiration become gradually more markedly impaired, until the animal dies in asphyxia at about the seventh day. Sometimes, though rarely, death from collapse at about the fourth day has occurred.

In conclusion, I must state my conviction to be that this disease is entirely different from Influenza ; that it is, in fact, a

specific fever, with well-marked periods, and dependent upon the existence of a germ of a specific and contagious nature. The fixed period of incubation, the gradual rise of temperature followed, as a rule, by a similar gradual fall, the great severity of the general-febrile symptoms, the characteristic exudations and congestions, with the total absence of inflammatory action, the probable dependence upon living microzymes, its highly infectious nature, together with its other symptoms, most distinctly differentiate Pneumo-enteric Fever from Influenza proper.

ACTINOMYKOSIS: A NEW INFECTIOUS DISEASE OF ANIMALS AND MANKIND.

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR.

(Continued from p. 167.)

Johne and Vachetta point out that the periphery of the *Actinomyces* tuft is not always so symmetrical as Harz has represented, and my own observations confirm this remark. When closely examined, many of the club-shaped cells towards the periphery will be found standing out prominently from the



FIG. 9.—Unsymmetrical *Actinomyces* Tuft.

others, and measuring about 0·0019 mm. broad to 0·0740 mm. long (Fig. 9, *α*; Fig. 10, *aa*).

Here and there are some fine, pale, faintly shining, single mycelium threads springing from the depths of the tuft, and appearing beyond its margin (Fig. 10 *b*). Another tuft, or portion of one, mainly consists of such mycelium or hyphen-threads (as in Fig. 10 *b*). Very exceptionally, there are seen at the peripheral end of these fine threads, a delicate pear-shaped expansion (Fig. 10 *c*) ; and among them are larger pear or club-shaped cells, often crowded together (Fig 10 *d*) ; while not unfrequently are noticed isolated, and generally small tufts, which appear to be composed only of the very finest mycelia, and which Harz looked upon as aborted forms, but which Johnne considers young growths. Within the zone of the tuft (as in Fig. 9), and especially towards the centre, are not only the upper surfaces or ends of the larger club-shaped cells visible, but also small shining corpuscles, which resemble micrococci (Fig. 10 *e*). In the centre of the tuft, in addition, are extremely fine, but not

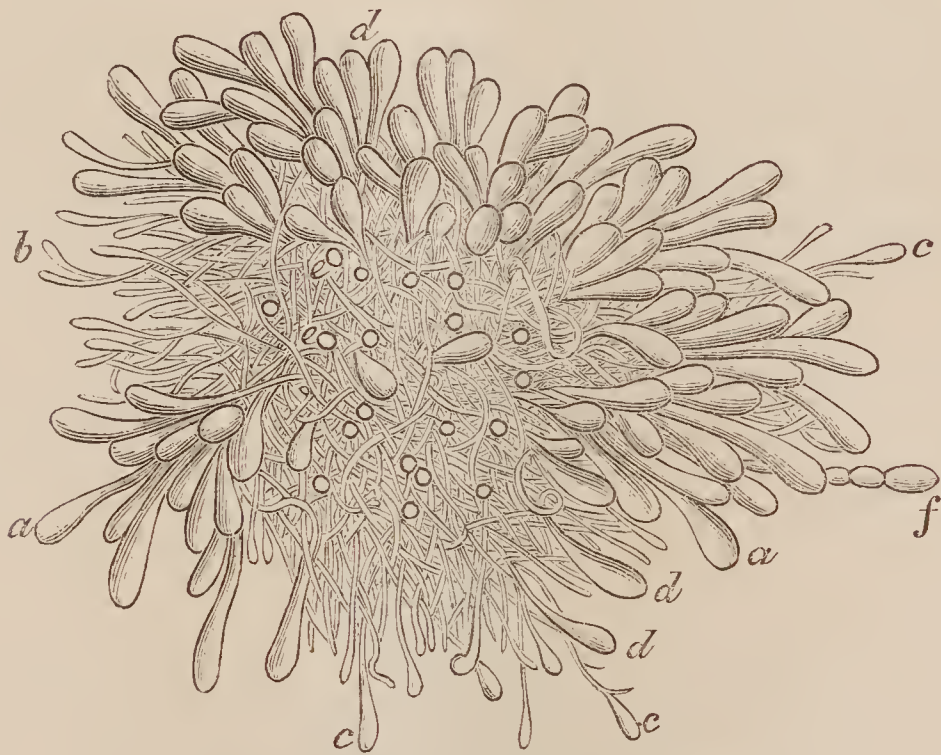


FIG. 10.—An *Actinomyces* Tuft.

very numerous mycelia ; and beyond these, passing direct towards the periphery, are many mycelia with their extremity expanding into a long pear-shaped body (Fig. 10 *c*), which has received the name of Conidium, and of which there is generally only one for each thread. In breaking up or pressing the tuft, the conidia are very easily detached in the shape of conical or

pyriform bodies, with in many instances the narrow end much elongated. The mycelium is irregularly branched, two or more conidia growing from each by means of their narrow extremity, something like a bunch of grapes (Fig. 11)



FIG. 11.—Mycelium and Conidia of the *Actinomyces*.

The various forms the conidia may assume are shown by Johne, Ponfick, Harz, and Israel; but the most diverse opinions are entertained as to the development and growth of the fungus itself.

It is probable that when the fungus-tufts become calcified, as they are often found to be, their growth has ceased, and they can no longer fructify.

Culture experiments have hitherto not been very successful, so that we are still in the dark as to the process of, or length of time necessary for, development. Clinical observation and experimental inoculation, however, would go to prove that spon-



FIG. 12.—Fragment of barley, with clusters of Conidia of the *Actinomyces*.

taneous or accidental Actinomykotic tumours take longer to grow than those which are experimentally produced.

Israel was of opinion that the mycelium of the fungus obtaining access to the tonsils of mankind and there producing germs or spores, gave rise to Actinomykosis ; and Johne believes he found corroborative evidence of this in making a careful examination of the tonsils in the section of a pig's head. Externally, these appeared quite healthy, and on pressing some of the glandulæ only the ordinary turbid mucus fluid they usually contain was expelled ; but from others there was expressed a yellow, thick, grumous matter, something like pus, and which on examination by means of the microscope was found to have a very great number of *Actinomyces* tufts of various sizes and in different stages of development, some of them even calcareous. A section of the amygdaloid cavity showed that it was much dilated, and its lymphoid tissue normal, as a rule ; only in some preparations of the part did this tissue appear infiltrated with small cells. In some of the glandulæ were small, delicate, but rigid vegetable particles, which were for the most part fragments of corn or barley husk ; and on close inspection there were perceived, either on the surface of these particles or clustered on the beard of the barley, with few exceptions, crowds of pear-shaped hyphenless conidia (Fig. 12) which in form, size, etc., differed in no respect from those found in the Actinomykosis nodules.

Johne subsequently examined the tonsils of twenty-four pigs which were apparently quite healthy, and with only two exceptions found them free from these fungi. He could never discover them in the tonsils of cattle.

Pathology.

There can scarcely be any doubt as to the etiology of Actinomykosis. The *Actinomyces* is constantly found in new formations of a special kind, and through its irritating and disintegrating influence it not only produces these formations, but sets up destructive processes in the tissues in which it may locate itself ; and sooner or later, unless it loses its power or is removed from them, it causes their death. An *Actinomyces* tumour must, therefore, be looked upon as what German pathologists designate an "infection tumour," and Actinomykosis as an infectious disease.

As has been said, the tumours offer certain distinctive characters, and all tumours possessing these characters contain the fungus. Externally these growths, be they large or small, present various appearances; but they are generally round, lobular, or fungiform in shape, smooth on the surface, and soft in consistency, like the polypi-sarcomata, or somewhat hard, like the fibro-sarcomata or fibromata. In colour they also vary—the latter being of a greyish-white, or light-yellow tint; the former are darker, less vascular, and often stained by blood extravasations. Studding the surface, and particularly in the softer variety, are generally seen a multitude of small, very yellow nodules, whose presence is really a diagnostic feature. On section, the typical character of the Actinomykoma is best displayed. Imbedded in the fibrous stroma of the growth are noticed the various-sized nodules, more or less numerous, small and isolated, or in confluent rounded masses the size of a hazel or walnut, grey or yellow in colour, of a cheesy softness, and in the very smallest of them are a number of minute particles or centres, sulphur-yellow in tint, which are the clusters of the *Actinomyces*. If one of the cheesy masses is submitted to pressure or teased out, these particles—which resemble Lycopodium seeds—are slightly separated from the matter around them.

The majority of these are soft, something like tallow; others may be gritty to the touch, when they are impregnated with lime salts. Whether occurring in animals or man, these peculiar particles must always be considered diagnostic of the disease, even without the aid of the microscope.

When the nodules are removed from the connective-tissue stroma, this is found to be cavernous in its structure, from the large number of small cavities they occupied—another characteristic feature of the tumour.

I have already alluded to the histological characters of the nodules.

As to the manner in which, and channel by which, the fungus invades the tissues, there is no satisfactory evidence. It is, however, extremely probable that it enters, in the form of spores, through a wound, abrasion, fissure, or even by means of the

delicate mucous follicles of the membrane lining the lips, mouth, pharynx and nostrils—in fact, any part of the digestive or respiratory canal. It has been shown that it may exist harmlessly in large numbers in the tonsilar glands of the pig, probably waiting for a casual abrasion or removal of the epithelium, in order that it may rapidly develop in the tissues beneath.

This injury may be inflicted in many ways, and very likely by the food upon which the animals most liable to the disease are fed. I am informed by a practitioner in Lincolnshire, that the malady is most frequent after cattle have been fed on straw, barley, and chaff; and this may not only injure the mouth, but serve also as the vehicle for transmission of the fungus—straw being so often mouldy, and infested with vegetable parasites of various kinds.

The species of animal invaded by the *Actinomyces* appears to have much influence on the pathological results. In man the tendency is to suppurative processes and metastatic abscesses; while in animals it is to new-formation tumours, and induration or degeneration of tissues—be they hard or soft; the extension of the fungus being progressive by means of its spores, which are disseminated, localise themselves, fructify, and produce the characteristic changes in their surroundings. These spores may find their way into the œsophagus, stomach, and intestines, or into the bronchi and lungs, and there fructify.

That the disease is transmissible from one animal to another, there is now no reason to doubt, as the fact has been experimentally demonstrated by Johne and Ponfick. The experiments of these and others had previously failed, probably because the inoculation material was too old and had undergone change.

Johne subsequently employed quite fresh material, and was successful in three out of four experiments—the animals being two calves, a cow, and a foal. The latter remained unaffected. The calves were inoculated subcutaneously behind the lower jaw, and elsewhere, and a small quantity of the same material, which was derived from a tumour on a living cow, was also introduced into the peritoneal cavity. In one case death took place forty days after inoculation; the calf having lost its appetite, became emaciated and debilitated, and then succumbed. At the

seat of inoculation, as well as in the abdomen, Actinomykosis was markedly developed. In the second case, death took place 114 days after inoculation, and the results were found to be as marked as in the other instance.

The third case was a pregnant cow, which gave only a small quantity of milk. This animal was inoculated through the milk-duct of the teat. The inoculation was in a few days followed by inflammatory œdema, which soon became developed into phlegmonous Mastitis. Without any treatment the inflammation subsided, but there remained a small hard swelling, which increased so much that in three months the quarter of the gland was double its normal size, and felt like a hard fibroma. No milk was secreted. The cow was killed 133 days after inoculation, and in the udder were discovered all the signs of Actinomykosis : diffuse fibroma, with, in various parts, multiple spongy fibro-sarcomata, the interspaces of which contained the characteristic nodules or "granulation tissue," enclosing the fungus.

Ponfick did not succeed in inoculating dogs or rabbits. He endeavoured to produce the disease in cattle, by feeding them with infective material in the form of fresh nodules, but the results were negative. By subcutaneous inoculation and intravenous injection, however, he was completely successful, and the lesions of the former were similar to those in Johne's cases. Injection of the material into the jugular vein produced, in the course of two or three months, typical new formations in the lungs. The details of these experiments are very interesting, and I regret I cannot transcribe them here. But they conclusively prove that the artificial production of the disease does not alter in any way its characters.

There is no record of any instances which might tend to show that the disease may be accidentally transmitted ; though the fact that it is inoculable leads us to suppose that it may be conveyed from one animal to another, from one man to another, or from animals to man, and *vice versa*.

Ponfick relates the case of a woman, thirty-four years of age, who was attacked by the disease, and who had been for several years employed as a servant, in which position she was frequently among sick cattle, and these were affected with what the

veterinary surgeon who attended them called "wurm"—the popular name in Germany for the malady under consideration. This is the only case of probable transmission recorded.

Now, however, that attention is likely to be directed to the disease by veterinarians and surgeons, we may be able to note its accidental transmission from diseased to healthy animals, and to mankind.

(To be continued.)

DISEASE IN HORSES' FEET RESULTING FROM THE USE OF GERMAN MOSS LITTER.

BY J. ROALFE COX, F.R.C.V.S., LONDON.

A PECULIAR disease affecting the feet of horses, consequent on the use of German moss litter, having come under my notice, I propose to relate the particulars; and it will be interesting to learn, through the pages of the VETERINARY JOURNAL, if a similar result has occurred in the experience of others.

A fair trial was given to the moss litter in the stables of a large London brewery where I am professionally consulted.

The stud comprises about 140 horses, and by degrees the litter in question was being used to about half the number.

The frequency of a peculiar disease of the horses' feet led, in our investigation, to the discovery that all the cases were occurring in that division of the stud in which the moss litter was exclusively used, and not any cases of the kind affected the horses being littered with straw.

The moss litter being discontinued now some months since, no fresh cases of this disease have been observed.

Tenderness in the feet was first noticed, and on examination the horn of the sole and of the frog was found to be peculiarly softened; it afforded a yielding sensation to the finger not unlike that which is imparted by India-rubber; and on cutting the altered horn it was almost as easily sliced as cheese-rind.

The outer surface being in this way slightly pared off, the deeper substance of the horn was discoloured by a pinkish stain.

The horn of the frog was in many instances found detaching from the vascular surface, which was very disposed to take on a diseased action somewhat allied to "Canker," and became extremely difficult to treat. The same destructive disease, in a less number of cases, also affected the structure beneath the horny sole.

Horses which were not lame, and specially brought under notice for treatment, were stopped promiscuously from work for the purpose of examining the feet, and in these the same altered character in the horn was more or less presented.

It was a marked fact that the *fore feet* were much more frequently affected than the hind ones; and in reference to this, it may be remarked that the fore feet and shoes seemed to hold the litter more than the hind ones, whilst, too, they were more continuously standing in it, the hind feet being in position to stamp and tread the litter aside.

This may explain the predominance of the ill effect in the fore feet, the horses being kept in stalls.

The altered horn had the appearance of having been acted on by some chemical agent, and whether this was in the article itself, or due to its special mode of preparation, or to subsequent changes taking place under the combined influence of its decay and the retention of the urine, also undergoing chemical change and decomposition, further experience may elucidate.

It is not improbable that the quality or material of the moss litter may vary in different consignments.

CINERATORS AND SANITATION.

BY J. MILLS, M.R.C.V.S., A.V.D., LECTURER ON VETERINARY SURGERY AND MEDICINE AT THE AGRICULTURAL COLLEGE, MADRAS.

IN a country like India, where there are so many domesticated animals, the proper disposal of the dead seems to me a question of paramount importance, although one evidently much neglected.

By burial, however deep, certain parts of the country in time must become more or less contaminated, and the atmosphere

rendered impure and unhealthy, and dangerous both for man and beast to live in.

Burying is, without a doubt, the most insanitary mode of getting rid of the dead, and one which ought to be put a stop to, where practicable, by Government, and even the institution, if necessary, of stringent laws on the subject. Although, perhaps, they might infringe on the private rights of the population, that consideration must be set aside when, through improper sanitation, the lives of human beings are in danger.

I would strongly recommend the building throughout India of cinerators, according to my plans, not only for the purpose of cremating or reducing to ashes the carcasses of animals that have died from such diseases as Anthrax, or have been destroyed for Glanders, but also for getting rid of all refuse or objectionable matter, such as dressings from wounds and sores, and the stable litter in stations where it cannot be utilized as manure, and where its accumulation becomes objectionable.

I am perhaps late in bringing this subject to notice, but, it is to be hoped, not too late to do some good, for I see no better or more effectual mode of getting rid of diseased germs than by fire; and, in fact, it is clearly evident that this is the only true way of preventing the spread of contagion.

The disease germs of Anthrax (one of the most fatal animal scourges we have in India, and one whose increasing prevalence, no doubt, is due to the burial instead of the cremation of the dead), says Pasteur, can travel long distances through the medium of earth-worms, and retain their vitality for a very long period. Is it not enough, therefore, on such authority as his, for us to use proper and thorough means for the destruction of these germs, and in that way to remove the cause of the disease, as, while the cause exists, the effect will never cease?

In various parts of India, where we hear of outbreaks of disease amongst men and animals, we should ask, What are the causes? Might they not be due to the absence of proper measures for the disposal of infective matter? But, whether such be the case or not, I should like very much to see cineration get a trial.

Cinerators ought to be erected near all hospitals, cholera camps, sick lines for animals, and bazaars, for the purpose of

burning everything likely to convey disease, or to prove insanitary.

As regards the question of fuel for those for hospital use, in all stations where there are horses it would be an easy matter to get a load of stable-litter, which I find answers the purpose well.

Now, as to the cost of building. A cinerator made of mud or clay (a small one), would cost only Rs. 8 or 9, and a large one, for cremating animals in, Rs. 16 or 18; therefore, on the score of expense there can be little objection to them. Clay is, of course, much to be preferred, as it forms a firmer and more permanent wall, and less likely to be affected by the rains than mud, and in stations where it is procurable I would strongly recommend its use. If they are to be constructed of brick, then we come into the subject of expenditure, which is always best to be avoided; but, from two years' experience of the mud ones, I find they serve every requirement. They can be easily and readily put up, without the aid of skilled labour and at a trifling cost, which is no small item in their favour.

To show what can be done with these cinerators, I have been able, during the outbreak of Glanders and Farcy at St. Thomas' Mount, to cremate the carcasses of eleven of the horses destroyed for the disease, and at Secunderabad I disposed of the carcass of a horse that died from Anthrax in the same manner. The average time occupied in reducing them to ashes was about twelve hours per horse, and with no other fuel than stable-litter. I think this is sufficient evidence of their utility, and I cannot help remarking that I look upon the above evidence as most satisfactory, as I have been able to effectually dispose of the carcasses of these animals with incurring but little expense to the Government, and saving the district from probable contamination by burial; and it also tends to illustrate how far many of the sanitary evils which now exist are subject to human control.

Of course, cremation may be made much more speedy by the aid of wood, but I do not see that it is at all necessary, as the stable litter consumes the carcass quick enough for all practical purposes.

It requires very little consideration to see that the cineration of diseased matter is but a rational means for the preservation of health, and the prevention of epidemic afflictions.

Site.—The site for building them on should be selected where as much draught is procurable as possible, and where the smoke from the cinerator will not become a nuisance, or in any way interfere with the public health.

Building.—Where clay is not procurable, the wall must be made much thicker, especially at its base—in fact, to stand any time, it ought to be made nearly double that of a clay wall.

After the foundation is constructed, allow it to set for some days before beginning the superstructure, then build the first 3 ft. of the wall, and allow that also to thoroughly harden before placing the stones on which are to form the top or arch of the vent-holes. After this you may build as circumstances will permit, care being taken not to be in too great a hurry.

I find the best men to employ as builders are horsekeepers, as, although they are not skilled labourers, and require a good deal of watching, still they are well up in the erection of mud buildings.

A good foundation for the steps, is a few loads of stones or large boulders.

When the cinerator is finished and thoroughly dry, it ought to be well “laped” over, and this operation repeated weekly, after all the cracks in the wall have been filled up.

Rules for its use—1. In filling the cinerator for the first time let as much straw as can be spared be placed in the bottom so as to give the fire a start, and then gradually fill it up, and when half full, ignite the straw at the vent-holes. After the walls are thoroughly heated any material will burn.

2. Care must be taken to keep the vent-holes *well* cleared of ashes, to prevent *choking*. This can be done by having a rake or fork, etc., made and secured to the end of a long bamboo.

3. Clear the cinerator entirely out every fortnight or three weeks, so as to make any repairs to the walls which may be necessary.

4. For cremating a carcase, fill your cinerator about three parts full with litter, place the body on either whole or in

pieces, and cover over. From time to time supply plenty of fuel, to ensure the thorough cineration of the carcase.

5. During the rains, have a large tattie made to place against the side on which the rain is beating, and construct a trench round it to prevent inundation.

Remarks.—As regards the building of the brick cinerator, that, of course, must be left to those who make such work their profession. I have never had the opportunity of seeing one at work, but have no doubt they would answer the purpose well, and if at all practicable they ought to get a trial. Of course, the cost of construction will, I am afraid, debar them from becoming generally used, except in large stations, where one of them might be built for cremation purposes, for the common use of all the troops.

The ashes or charcoal from a cinerator I have found most useful to throw down in stables where animals have urinated, acting by absorbing the urine, and also as a deodorizer. All that is required are a few heaps of the ashes distributed throughout the stable, so as to be readily got at by the syces.

In conclusion, these cinerators, like everything else, if we want them to succeed, must be personally superintended, both in the building and in the working of them, as, if left to others, carelessness will probably bring them into discredit and eventual disuse; but after two years' experience of them, and having spent a good deal of time and trouble in bringing them to their present state, I can confidently assert that, if built according to the plans I have submitted, and worked as laid down in this report, they will be found valuable agents in a sanitary point of view.

With the photograph accompanying this report, it will be observed that a derrick and tackle have been brought into use, to lift the carcase into the cinerator, but as the purchase and upkeep of this mode of working would be somewhat expensive, which I wish particularly to avoid, and not always available, I have invented a ramp and platform, so as to entirely do away with that arrangement.

The ramp is at a gradient of 1 ft. in 5, which will not be found excessive. It is broad enough for a cart to be driven up it, which, when on the platform, can be turned round, tilted up, and the

carcase, or anything else it might contain, slid into the cinerator. The platform I have designed as a place, where, when an animal is to be destroyed, he can be shot close to the mouth of the cinerator, and then rolled in without trouble, and also as a place where, when animals die, all *post-mortem* examinations ought to be made, which seems to me highly essential, because it is undoubtedly a bad and unsafe practice to allow these examinations to be made in the vicinity of sick lines or stables.

The two-foot wall on ramp and platform is put up for the purpose of preventing the animal, when in the act of falling after being shot, from getting over the side. This wall I find to be necessary, because a few days ago I shot a horse on the ramp, on which he fell, but the greatest difficulty was experienced in moving the carcase in, as in rolling it over the head or hind legs were always getting over the side, which caused a certain amount of delay, with the risk of its slipping off the ramp altogether.

So as not to make the ramp and platform too high, which would have increased the gradient, I have taken a portion of the wall out opposite the stage, to bring the mouth of the cinerator on a level with it. This portion of the wall which has been taken out, will be found not to interfere in any way with the cremating powers of the arrangement.

The wall next the ramp must be straight, as it is only natural to infer that, if inclined inwards the mass of earth behind it will bring it down.

In constructing on this plan, build your ramp first, and allow it to be thoroughly dry and hardened before beginning your cinerator, as, if not, the ramp is liable to give way and bring the whole to the ground.

This arrangement dispenses with one vent-hole, but I find three are ample, as I have had two cinerators working on this system for some time, and they do well. Of course I wish it to be clearly understood that this artificial ramp is not to be erected when a natural one is to be found, either on the face of a hill or some other rising piece of ground ; but as that is not always procurable, I submit this plan to overcome the difficulty. Some may think that it is difficult to get a horse to walk up on

to the platform to be shot, but I have never encountered the slightest trouble yet in getting the animal close up to the cinerator, as he, unlike man, suffers no mental agony, being in utter ignorance of what is about to take place.

Since writing my first report on this subject, I have seen the bodies of some human beings cremated by means of bratties or dung-cakes, which are most effectual, simple in the extreme, and inexpensive, and which might with advantage be made applicable to the disposal of the carcasses of the lower animals, more especially when it might be impracticable and unnecessary to build a cinerator, in such instances where a regiment or battery were on the march, or when a sudden outbreak of disease gave no time to erect one.

These bratties can be bought in the bazaars for about two annas per hundred. But when a regiment or battery is in a station, these bratties ought to be made up by the sick line syces in their spare time, and stored away in stacks, so as always to be ready for use when required. The way I saw them used was, a pile was made of the bratties, about one and a-half feet high, then the body was laid on, and more of them (the bratties), placed over it, which formed a regular mound; the whole was lit from below, and in a very short time little was left but ashes.

With the carcass of an animal, of course, the difficulty would be in getting it on the pile; but I think if it was simply laid on the ground and well covered with bratties, and lighted, that cremation would rapidly take place. Of course, if a hole were dug, say 6 by 4 by 2, and filled with dung-cakes, the carcass placed over them and well covered there would, no doubt, be a saving in fuel.

THE SYSTEM ADOPTED BY THE GOVERNMENT OF INDIA FOR THE IMPROVEMENT OF HORSE STOCK.

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SINCE the abolition of the studs, Government has recognised the necessity of endeavouring to obtain an indigenous supply of

horses, and very wisely has decided to leave the matter entirely to private enterprise, supplying, however, for the use of the farmers, stallions calculated to improve the breed. In 1876, the Department of Horse-breeding Operations was formed. The duties of the officers of this department may be summed up in a few words. They visit each district of their respective provinces, and at different centres, having previously circulated notices, all the mares are collected ; these are carefully inspected, and such as are not possessed of any hereditary disease, and are otherwise calculated to breed remounts, are then branded with some distinctive mark, varying in the different provinces. These mares are then allowed the services of the Government stallions gratis, and without the brand no mare can be served. The most important duty is, however, the selection of such class of stallions for each district as will be likely to mate well with the mares of that particular district. These may be looked upon as the most important duties to be performed. There are, however, many minor ones, all of which are essential to render horse-breeding a success. Amongst these should be enumerated the education of natives, especially in the matter of rearing of young stock. The native of this country is, perhaps, one of the most conservative of mankind ; and no matter how palpable an error is, it is most difficult to eradicate, as the reply invariably is that his forefathers always did so. For example, spiked bits have always been used ; and although an Englishman finds but little difficulty to accustom a country-bred horse to a plain snaffle, yet a native will seldom believe that the animal could be held with anything but the sharpest and most severe of bits. Again, owing to the risk which formerly existed of their young stock being stolen, natives have been accustomed to tether them in every conceivable way. Formerly, also, it was considered that castration reduced the powers of a horse. It will be at once seen that until these notions have been eradicated from the minds of the zemindars, or farmers, horse-breeding, or rather the rearing of young stock, would be an impossibility. Time, however, is rapidly showing them that if they wish to compete successfully in the horse-market they must adopt the advice given to them, and nothing has tended more to the circulation of good advice

than the pamphlet in Urdu, written by Inspecting Veterinary Surgeon Meyrick, which, with the sanction of Government, has been issued gratis to the owner of every branded mare. It is pleasing to find that castration is fast developing, especially in the Punjab. For example, in the district of Dera Ghazi Khan, 154 colts were castrated last year, and before the formation of the Horse-breeding Department it was always customary to destroy every colt at birth. Again, runs, some of large size, also paddocks, are rapidly springing up in nearly every district. Young stock, therefore, brought up on the liberty system cannot but improve.

Stallions.—At present there are about 305 employed. Of these 115 are located in the North-western Provinces and Rajputana, and 190 in the Punjab. The following will show the classification on 1st April last, since which time some have been disposed of:—

Thoroughbred, English	...	...	74
Norfolk trotters, including half-breds			127
Arabs	...	...	72
Stud-breds	...	...	36
Miscellaneous	...	...	6
			—
			315

The English horses, both thoroughbreds and Norfolk trotters, are purchased and sent out by the troop-ships to India. The purchasing may be looked upon as one of the main faults of the system. Firstly, in the price paid. With regard to this, it would appear that about £350 is the maximum paid for thoroughbreds, and for this amount really good sires of this class cannot be obtained. The result is that horses of this class are frequently received which can but be looked upon as weeds, and which should never be used as sires. Secondly, in purchasing, the main faults to be corrected in the mares should be borne in mind. These may be enumerated as want of bone, badly-shaped fore legs and hocks, want of barrels, and deficiency in muscles of quarters and thighs. The thoroughbred weed will not counteract the want of bone, but, on the other hand, it should also be remembered that the very big coarse Norfolk trotter will

not “nick” with the mare of this country, the average height of which is 14.2. The well-bred Norfolk trotter, and what is understood by the weight-carrying hunter, that may only have a slight stain in his pedigree, are horses that are greatly required in this country. Arabs, again, are obtained of a very middling stamp. The best of this class of horses are bought up immediately they land in Bombay, and even when sent for Government purposes direct from Turkish Arabia they are very frequently not fit to be used as stallions.

The above would point to the necessity for the most careful selection of sires; for, as has been frequently urged, none but the very best should be used, otherwise, in using second-rate ones, we are losing most valuable time.

Mares.—The mares of this province (Punjab) vary very much in the different districts, and therefore, as before remarked, the greatest care has to be taken in the selection of sires that are likely to “nick” well. These mares are of a hardy nature, capable of undergoing very great exertion on little food, and that of a coarse description; in fact, it would be difficult to imagine any animal that could do as much. During the Afghan war, ponies were frequently seen that had drawn “ekkas”—light vehicles on two wheels—with three or four men in them, from Rawalpindi to Jelum, a distance of sixty-seven miles, in from twelve to fourteen hours; and occasionally one pony has been known to do this distance in eleven hours. With this to work upon, I have no doubt that time will prove that the northern part of India can breed as good a description of horse as can possibly be wanted for army purposes. Of selected and branded mares, there were on 1st April as follows:—

Punjab	...	...	...	...	7,596
North-western Provinces	...	...	...	...	4,249
					<hr/>
					11,845

With this large number of good mares, remounts could easily be obtained for the whole of the Bengal army; and this leads to the consideration of the question as to the age at which they should be purchased. On the abolition of the studs, it was decided by Government that the zemindars, or farmers, should

rear their young stock, and that when of sufficient age to become remounts they would enter the market, and purchase those considered fit. In this, however, a grave error was committed, inasmuch as the natives were unaccustomed to rear their young stock in any but the most primitive fashion, and in this way many a thoroughly good youngster has been ruined. As has been previously shown, many of their mistaken notions are being eradicated ; but still the breeders are not as yet, speaking generally, sufficiently educated in rearing young stock to be left entirely to themselves ; and therefore the purchase of any good colts or fillies that may be seen by the purchasing agent at eighteen months of age is strongly advocated ; for up to this age they are seldom, if ever, tied up, and therefore no mischief is done. These youngsters should then be placed on good grass runs, and should in no way be interfered with until they are at least three and a half years of age, when they might be taken up and got ready to be sent to regiments and batteries. One of the mistakes which evidently existed in the old studs, and which caused much mortality, would of course have to be avoided—the collection of a very large number at one place.

In order to further encourage horse and mule breeding, the Government of India has inaugurated a number of horse-shows, which are held in different districts of both North-western Provinces and Punjab. At these fairs Government prizes are awarded. During the official year 1881-82 the sum of Rs. 18,200, or taking the rupee at 2s., £1,820, was sanctioned for prizes in the latter province. For these prizes, 6,637 competed in the Punjab, and much of the young stock exhibited was of very great promise. These horse-shows also serve the purpose of forming the horse-marts of India. Here all purchasing officers collect, and frequently the competition is most keen. I must explain that the horses of the native cavalry regiments are the property of the “sowars,” or troopers, and each regiment sends its purchasing officer to obtain remounts.

That the present system is one which will ultimately succeed there can be but little doubt ; in fact, in districts where the system has been in force for five or six years the improvement of the horse stock is most marked. We can, however, better

judge of the success when we see the remounts of the various native cavalry regiments, and especially when we compare them with remounts that were obtained a few years since. The advantages to be derived from this system are so great that they need scarcely be enumerated. Amongst the greatest must, however, be reckoned the fact that the money which hitherto has been sent out of the country yearly for the purchase of horses, as horse-breeding develops, will find its way into the farmers' pockets, and their prosperity will be greatly enhanced. There are, however, many points which must be considered, and which should be borne in mind by Government. Amongst others—

1st. That to succeed in horse-breeding, none but the best sires should be obtained.

2nd. That to render the system a success, every assistance should be afforded to the farmer. Allusion is not now so much made to pecuniary aid as to advice ; and therefore it is impossible to expect one man to superintend horse and mule breeding operations in a province the size of Great Britain, especially when it is considered that there are 191 horses and 141 donkey stallions located at 90 different stands, and that there are nearly 8,000 brood mares, not reckoning fully the same number set aside for mule-breeding in the Punjab alone.

3rd. That the system should be made as little irksome as possible to the farmers, for they are of such a disposition that they would rather forego the advantages of obtaining the services of Government stallions than be hampered by a lot of rules and regulations.

Allusion has been made to mule-breeding. This forms one of the most important duties of the Department of Horse-breeding Operations. During the Afghan war, it was clearly proved that for hill warfare the mule was by far the best beast of burden ; and the Director of Transport with the Indian Division during the late Egyptian campaign speaks highly of the work performed by the Punjab mule, which certainly is an animal capable of undergoing the greatest exertion on little food. Therefore the breeding of such, as also of mules adapted for batteries of mountain artillery, is extensively encouraged.

For this purpose Government supplies good donkey stallions gratis. These consist mainly of Arab, Spanish, French, and Italian animals ; but very good stallions are at times obtainable from Bokhara, and by encouraging the breeding of good donkeys Government has lately been able to obtain really good country-bred ones. In this way a great impetus is given to mule-breeding, and the Government of India will also derive great benefit from the system, as by increasing the number of mules foaled good serviceable animals of this description will be obtainable at a reasonable price.

Editorial.

THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE SOCIETY.

THE report of the meeting and publication of the balance sheet of the above society, which appears in the Journal for this month, will, it is earnestly hoped, attract the serious attention of those who do not yet belong to it, and who, though deeply engaged in professional duties, should not overlook or ignore the claims which it has upon their philanthropy. Of the objects of the society it is needless to speak ; its designation is sufficiently explanatory of its functions, and they appeal to every one who is animated by a feeling of professional fraternity and benevolence. The efforts of an individual to afford relief to the needy, or aid in defence, may be feeble or futile ; the combined efforts of a number of individuals will effect much. In a profession like that followed by the veterinary surgeon, there is great need for mutual succour and support. Though many may make a respectable livelihood, yet there are comparatively few who can, in a certain number of years, save so much money as to provide for their families in case of death—many, we fear, after long years of unremitting toil, have but little to sustain themselves, their wives, and children. And the veterinary surgeon is, perhaps, more exposed to accidents and disease in the practice of his calling, than any other professional man. So that what between his oftentimes slender income, barely sufficient to meet every-day demands, and the risks and dangers he has to encounter, it is not to be wondered at that cases occur in which the families of worthy men are suddenly left destitute ; and appeals for aid do not always meet with that response which would drive the wolf from the door. It is these cases which the benevolent society more especially takes up, and no society could have a more praiseworthy or sacred mission. It deserves the warm encouragement and liberal contribution of every member of the profession, and our reference to it now is to point out the great good it has already done with the small means at its disposal, the much larger area over which its benefits would extend if

its funds were larger, and the strong claim it has upon every one who lives by the practice of veterinary surgery. The subscribers to the society are few, far too few, when compared with the number of practitioners in the United Kingdom, and it is to be hoped that the next balance sheet will testify to a large accession. A small annual contribution from every member would annually amount to a considerable sum which, well applied, would solace the aching hearts and calm the anxious minds of those who, through misfortune, are rendered worse than poor.

Mutual defence is imperatively necessary in the veterinary profession. From no fault, omission, or lack of skill, a practitioner may be held liable for the loss of, or injury to a patient, and sued, or threatened to be sued, for compensation. To defend himself may be a most costly business—may, in fact, signify ruin to him, not only in purse, but in reputation. In such instances mutual assistance would afford that protection which innocence should always receive, and might possibly avert an unjust verdict.

With these purposes in view, the society deserves, and should receive, every possible support. None know what help they or theirs may need ; and professional brotherhood should in nothing be stronger than in its manifestation of active sympathy with those who are in danger or distress.

THE COMPARATIVE PHYSIOLOGY OF MENSTRUATION.

BY ALFRED WILTSHIRE, M.D., F.R.C.P. LOND.

THE comparative method of study is, before all, the most trustworthy help towards the attainment of accurate knowledge, since, by its aid, a just appreciation of the relative value of facts may best be acquired. Accordingly, it merits employment whenever available, furnishing an efficient corrective of erroneous or disproportionate conceptions. It is valuable, also, inasmuch as it may afford clues to, or enlighten us respecting, important correlations ; while its influence, in checking and balancing our views and conclusions, is uniformly beneficial. Acquaintance with the value of this method has led me to regard certain departments of medicine by its light, and among them the function of menstruation, in the elucidation of which it contributes important and suggestive information.

The illumination thrown by the comparative method upon certain biological problems ancillary to medicine is great ; and the fervent, if not sanguine, hope is excited, that not only may similar enlightenment be vouchsafed in respect of recondite pathological problems, but that, through the pursuit of this instructive method, medicine, considered in its entirety one of the noblest studies, may, in process of time, be established upon foundations whence it may rise to a position not inferior to that accorded to other sciences.

The impression has long and widely prevailed, that the menstrual function is an attribute peculiar to the human female. Whether this be erroneous or not, will appear when inquiry is made into the manner in which the periodical activity of the reproductive organs is displayed or exercised in the females of the lower animals. Making due allowance for generic peculiarities, this function will be found to agree with others of the animal economy, in displaying harmonious subordination to the law of evolution. Inquired into on this

basis, and in accordance with the comparative method, the evolution of œstro-menstruation is discovered to be orderly ; and to correspond broadly with the evolution, anatomical and physiological, of the generative system of animals. In harmony with the universal result of biological research, the primitive indications of the function will be found to be but feebly marked. Gradually and progressively, however, the manifestations become more and more distinct, until, ultimately, the highest stage is attained in the human species. Thus traced step by step, it will be found that, from feeble and obscure beginnings in the lower creatures, the function emerges and develops until, in the highest mammals, it is unmistakably pronounced. It will also appear that, after its establishment at puberty—an epoch marking the assumption of the capacity for reproduction, and usually arriving only towards the time when the rate of growth is diminishing—its equilibrium is liable to fluctuation, and even disturbance, owing to the extreme sensitiveness of the reproductive system to vicissitudes of the environment, as Darwin and others have conclusively shown. It may be hoped that the laws governing this instability of equilibration will also be fully discovered, and, in process of time, admit of formulation, so as to render them amenable to remedial modification. Pursued and investigated on such a basis, there is a prospect that the physiology of the function may be brought within the domain of science, and cease to be a wonderment and mystery. It may also be hoped that the discovery of the physiological laws governing it will furnish, not only a foundation for the establishment of a sound and intelligent system of therapeutics, for correcting aberrations and remedying deviations, but also a more reliable basis than at present exists for pathological knowledge. Mr. Herbert Spencer well says (*Data of Ethics*, p. 277):—"Pathological science depends for its advances on previous advances made by physiological science. The very conception of disordered action implies a preconception of well-ordered action. Before it can be decided that the heart is beating faster or slower than it should, its healthy rate of beating must be learnt ; before the pulse can be recognised as too weak or too strong, its proper strength must be known ; and so on throughout. Even the rudest and most empirical ideas of diseases presuppose ideas of the healthy states, from which they are deviations ; and obviously the diagnosis of diseases can become scientific only as fast as there arises scientific knowledge of organic actions that are undiseased." The gain accruing from accurate physiological knowledge may thus be great, and ever growing.

So conspicuous a manifestation of sexual aptitude as a menstrual flux, whether sanguineous or not, is hardly to be looked for in the females of classes below the mammalian, with which the study of the evolution of the catamenial function might appropriately commence, for "in the classes of birds, fishes, and oviparous reptiles, there is no uterus" (Laycock). But there are generative canals, out of which, in the process of evolution, the uterus arises, just as does the bladder out of the renal excretory canals ; being developed by the aggregation of muscular fibres, and differentiation of epithelial elements at certain parts (like the stomach, with its powerful muscular and glandular apparatus in the higher mammals, or the gizzard in the fowl) ; and it may be useful to trace their evolution, for, even in certain non-mammalian creatures, the excitement attending the active exercise of the reproductive function is occasionally displayed by an increased vascularity and pigmentation of certain structures, particularly about the genital orifices, which exhibit a kind of efflorescence at the periods of sexual excitement. For instance, according to Pouchet, "Guersant says that, at the epoch of the oviposit (in fishes), the orifice of their sexual apparatus swells, and is clothed with a red tint. Savants who, like Spangenberg, are occupied in studying the genital organs of birds, have recognised that they experience also at the time of the oviposit a manifest excitement." I am informed that the genitals of the parrot and

pigeon tribes show this excitement. In other creatures, *e.g.*, amphibia, the orifices of the generative canals opening into the cloaca are generally increased in size at the breeding season. Reptiles also show increase in cutaneous secretions, especially of the odorous variety, in association with sexual activity. Laycock observes : "Many tortoises smell of musk, which probably proceeds from follicles connected with the cloaca. Several lizards, among others the iguana, have a row of small follicles with round orifices at the inner side of the thigh, which secrete, especially at the coupling season, an odorous fatty liquid ;" and Mr. Darwin (*Descent of Man*, p. 352) says : "During the breeding season, the anal scent-glands of snakes are in active function, and so it is with the same glands in lizards." As we ascend in the scale of creation, we shall find that the genital apertures of the higher creatures present analogous phenomena, culminating in the highest even in an issue of blood.

Attention may here be directed, *en passant*, to the general relations of pigmentation to reproduction, which are striking, and, as Mr. Darwin has shown, are in birds remarkable. He says (*Descent of Man*, p. 229) : "Many birds acquire bright colours and other decorations in the breeding season alone ;" and (p. 496) "certain ornamental appendages become enlarged, turgid, and brightly coloured during the act of courtship." Even in insects, sexual pigmentation is often highly conspicuous ; and Mr. Darwin (*Ibid.*, p. 265) says : "The sedentary annelids become duller-coloured, according to M. Quatre-fages, after the period of reproduction ; and this, I presume, may be attributed to their less vigorous condition at that time." We may therefore derive instruction from the observation of the suggestive phenomena accompanying the active exercise of the reproductive functions, even in the lowest creatures.

Before the difference of sexes arises, both sexual elements (sperm and germ) exist, and are carried in the body of a single individual, though, curiously enough, the congress of two separate individuals is in some cases necessary for fertilisation, *e.g.*, in creatures which are not stationary.

Gegenbaur (*Elem. Comp. Anat.*, p. 54) says : "All those animals which unite in themselves both kinds of productive organs are known as Hermaphrodites. A separation of sexes is apparently foreshadowed in various forms; by the alternating activity of the organs, at the one time the egg-forming, and at another time the sperm-forming, organ exercising its function. Hermaphroditism is the precursor of sexual differentiation..... A separation of the sexes effects the whole of the organism, for it produces a series of changes in each sex, which effect organs that had primitively little to do with the sexual function ;" and Darwin remarks, "It has now been ascertained that, at a very early embryonic period, both sexes possess true male and female glands."

Before generative ducts arise, the generative products escape from the bodies of the lowest creatures by a cœlomic orifice, and occasionally, even in this primitive stage, some excitement is displayed around the aperture ; but in the stage immediately above, when ducts begin to appear, imperfect though they be, we find that there is a remarkable constancy in the relation they bear to the renal excretory canals ; that, in fact, the generative products, having no proper canals of their own, make use of those of the renal system, and these often display pigmentation at their orifices.

According to Gegenbaur (*Elem. Comp. Anat.*, p. 609), "The germ-glands are developed from the structures known as genital ridges. Sometimes more and sometimes less of this ridge is converted into the ovary or testis." These genital ridges are found in the abdominal cavity, the epithelial investment of which "retains its primitive character along a tract which corresponds to the rudiment of the primitive kidney longer than it does in

other regions; and this epithelial layer may be distinguished as the germinal epithelium."

In the lowest forms, there are no generative canals. "Both sets of generative products are passed into the cœlom, whence they reach the exterior by the abdominal pore.....In the Salmonidæ, the eggs are passed into the abdominal cavity, and are evacuated through the abdominal pore." Again (p. 53): "In their simplest condition, the products of the reproductive glands merely break away from the spot where they are formed, and pass into the digestive sac, or into the body-cavity, or even directly to the exterior. Gradually, however, ducts, which are often very complicated in character, are added on; it is probable that these ducts are not primitively connected with the germinal glands. Where these ducts can be seen to have any relation to other organs, these appear to be excretory organs, and have been altered so as to correspond to this function. It becomes a great question where the excretory ducts of the reproductive matter are not in all cases excretory organs."

When, having passed beyond the primitive ductless stage, inquiry is made into the origin of the excretory ducts of the reproductive glands, we find that they are furnished by the primitive renal excretory apparatus (archinephron), the organs which eliminate the nitrogenous excreta from the body—organs distinctly derived from dermal glands (Gegenbaur, p. 46). The primary archinephric duct divides into two parts, so that there come to be two canals. "One commences at the anterior abdominal orifice of the primary duct, and has no further relations to the kidney. This is the Müllerian duct" (*Ibid.*, p. 604). Müller's duct becomes, in females, efferent, or oviducts, portions of which are ultimately differentiated into uteri. (The other archinephric duct becomes the efferent duct of the kidney, or ureter.)

And the late Mr. Balfour, in his admirable work on *Embryology*, shows how closely related the excretory and generative ducts are in the vertebrata.

The basis for the generative and urinary ducts is formed by the segmental duct, which is the duct of the pronephros. These, he says, "are the most primitive parts of the vertebrate excretory system." The meso-nephros, or Wolffian body, is formed of glandular canals, which open in the body-cavity of the embryo. The segmental duct becomes, in many forms, divided longitudinally into two parts: one with segmental tubes, forming the Wolffian or mesonephric duct, the other the Müllerian duct.

The intimate relations thus indicated primitively between the urinary and generative organs, foreshadow a connection which persists even in the highest mammalia, a point remarked by Aristotle.

In the Amphibia, the Müllerian ducts form oviducts, opening separately into the cloaca. "It is generally increased in size at the breeding season; this results in its being thrown into a number of coils. In the oviparous species (*Salamandra*), the terminal portion performs the function of a uterus" (Gegenbaur, p. 612). A similar but more advanced condition obtains in the Sauropsida, the oviducts being large coiled canals, with mucous membrane set in longitudinal folds, which are most marked in the lower portion. This latter portion secretes the shell, the anterior part the albumen.

We find, then, that even in certain low forms, as in some of the foregoing, the orifices of the genital canals are apt to display pigmentary or vascular efflorescence at the breeding times. The stimulating influence of activity in the initiatory acts of reproduction upon pigmentation generally is remarkable and conspicuous throughout nearly the whole of the animal and vegetable world. The exquisite beauty of flowers is sexual, and in close alliance therewith is their perfume, often equally attractive.

The brilliant hues of many birds, fishes, etc., owe their existence to a sexual origin; and, as already remarked, the orifices, whence the germinal product escapes, are in some of the latter highly pigmented.

It is, however, with the Mammalia that our study of the comparative physiology of menstruation properly begins. They, as a class, are elevated above the other portions of the animal world by the endowment of a higher organisation in many respects, and particularly by the possession of organs conferring upon them their distinctive appellation; organs which we shall find to exist in correlation with certain developments of other portions of the reproductive system, as well as of the general system.

Gegenbaur (p. 615) remarks: "In the Mammalia, the generative apparatus undergoes great metamorphoses, owing to the further development of various portions of the efferent ducts and the formation of a number of accessory organs. In the female apparatus, these are largely correlated with the relations that obtain between the embryo and the maternal organism. As this is least marked in the Monotremata, they undergo the least amount of modification, and have therefore direct relations to the lowest divisions of the Vertebrata, and especially to the Sauropsida. The oviducts open separately into a sinus urogenitalis, which communicates with the cloaca. The lower end of the oviduct, which is distinguished by the greater thickness of its muscular wall, forms an uterus; but this merely corresponds to the structures which likewise function as an uterus in many Anamnia and Sauropsida."

With regard to the Monotremata, the lowest members of the mammalian series, but little information is available respecting the phenomena observable at their periods of sexual excitement. The class is now neither numerous nor widely distributed, and opportunities for inquiry have not been at my command.

Pouchet remarks of them: "Many of the lowest mammalia are ovoviviparous (*Ornithorhynchus paradoxus*, Blum.; *Echidna hystrix*, Cuv.), or produce only simple embryos (*Didelphys*), whilst all the others present the characters of most marked viviparity." They resemble birds in possessing a common cloaca, into which the generative, renal, and intestinal canals open. They have no vaginae, and the uteri are rudimentary, affording no provision for the sustained growth and nourishment of the foetus, which, like that of marsupials, is soon cast out.

In Marsupials (such as the kangaroo), the evolution of the sexual system is somewhat more advanced, there being no vaginae, which, however, open into the sinus urogenitalis. The upper portion of each different duct forms an oviduct, while the next and thicker-walled portion forms an uterus. Gegenbaur says: "Each of the two uteri opens by a papilliform process into a portion, which from the exterior appears to be common to them both, and which is formed by the union of the two Müllerian ducts. A curved vagina is given off from this on each side (*Didelphys*), or the commencement of the tube is replaced by a cæcal sac which is pushed out backwards, and is usually, though not always, divided internally by a median partition; from this sac, the distinct 'vaginal canals' pass in a curved direction to the urogenital sinus (*Halmaturus*)."

My inquiries into the manifestations of sexual aptitude exhibited by the females of Marsupials, like the kangaroo, tend, so far as they go, to support the hypothetical conclusion to which my researches had already led me, namely, that in accordance with their lowly position as mammals having inferiorly evolved sexual organs, they would display comparatively slight and inconspicuous local evidences of the rut or "heat."

Kangaroos are known to breed in this country; and although certain gestative phenomena are still shrouded in obscurity—*e.g.*, the mode of transference of the immature embryo to the marsupial sac, which, according to

Owen, occurs in *Macropus Major* about thirty-eight days after impregnation—yet the times of “heat” have been recognised, and copulation witnessed, but only lately has any œstrual discharge been remarked. It must be remembered that in these creatures one orifice serves for the exit of fæces, urine, and generative products (in *Marsupialia* “there is even a common sphincter for the anus and urogenital orifice,” Gegenbaur, p. 622), and that this, when closed, conceals in the cloaca the several corresponding apertures opening thereinto. Probably, therefore, whatever exudation attends the epochs of sexual excitement, if any there be, is hidden in the cloaca, unless, indeed, it should chance to be abundant, and that is not anticipated; neither, likewise, is it to be expected that a flux would partake of a distinctly sanguineous character, unless in so feeble and insignificant a degree as to be scarcely recognisable.

The most one appears warranted in expecting in these and allied lowly mammalia, is a mucous flux, perhaps feebly stained, with some increased odorousness, which, as in the higher mammals, is highly attractive and exciting to the males.

I have gratefully to acknowledge my indebtedness for information respecting the kangaroos at the Zoological Gardens to Mr. Bartlett, the able superintendent, who informs me that the Society’s kangaroos display sexual excitement in September (which, he believes, corresponds in the southern hemisphere to our spring-time), and also in our spring month of April, the returning warmth of the season apparently stimulating them.

Until recently, neither Mr. Bartlett nor the keeper of the kangaroos had remarked any exudation or discharge from the cloacal orifice of the females at the time of “heat”; but, since attention has been directed to this point at my request, the keeper informs me that he has observed a “mattery slimy” discharge, slightly tinged with a reddish colour, at these times. He also informed me that, lately, prolonged copulation in a young female kangaroo, which had never bred, caused hæmorrhage, necessitating separation from the male. When impregnation has occurred, a close watch has been kept upon the females, in the hope of discovering the mode of transference of the embryo from the generative passages to the marsupium, but, hitherto, unsuccessfully. Mr. Bartlett tells me that something resembling blood and mucus has been seen to be conveyed by the female in her fore-paws from the cloacs to the marsupium, in which it was supposed the embryo might be entangled; and the keeper says that they sometimes find “hollow fleshy things” in the pens (foetal envelopes); but I understand that no conclusive observations have yet been made. The issue of blood in question, small though it be, at what in these creatures is equivalent to the parturient act, suggests obvious analogies.

Above these grades, whose sexual systems and mode of reproduction are peculiar (*aplacentalia*), we come to a multitude of mammals of various kinds (*placentalia*), concerning some of which observation has taught us many interesting facts, though these are still too few to satisfy legitimate desire for information.

In all creatures there are periods of “heat” or sexual excitement, when both males and females are apt for procreation. These periods are marked by systematic excitement, and by local phenomena of a more or less conspicuous character. Among the mammalia, the times of heat display a seasonal periodicity; that is to say, they recur annually, biennially, quarterly, or at more frequent intervals, according as the conditions of existence or environments are favourable, or the reverse, and, apparently in some degree, according to the size of the creature, being, for example, rare in the elephant. Yet in every creature seasonal periodicity, at longer or shorter intervals, is observed, and, as Darwin and Laycock have shown, this periodicity always

partakes of an hebdomadal character. It is always some greater or lesser multiple of a weekly period.

In the lower animals in a wild or feral state, the aptitude for procreation is seasonal, recurring mostly at times when food and warmth are plentiful. Under normal circumstances, the earliest longing for sexual congress is promptly gratified; in the female, conception ensues, gestation proceeds on its appointed course, and until the genesial cycle has been completed by parturition, the "rut" or "heat," with its attendant desire for copulation, does not ordinarily occur. But, impregnation failing from any cause (*e.g.*, absence of the male at the appropriate season of sexual appetite), we may inquire, Do the symptoms of heat persist indefinitely? and, if not, What period elapses before they are again exhibited? Observation of wild animals, both in a state of nature and during captivity (when the latter does not interfere with reproduction), and, still better, of domesticated animals, shows that, after a definite period of quiescence, œstruation, or the "rut," invariably recurs at epochs which strictly conform to some multiple of weeks. In highly-bred and well-cared-for domesticated animals, œstruation would probably be renewed periodically, until arrested by conception; for it is well known that domestication enormously enhances the capacity for reproduction, and renders that sustained which, under other conditions of environment, subsides until it is renewed by the seasonal awakening. It is probable that, in the wild state, in the absence of the male, the "heat" or stimulus to sexual desire would, after a few periodical manifestations, die away, grow cold, and subside; remaining in abeyance until the return of the season with which it is primitively allied. This long rhythmical periodicity may be termed "seasonal," since it appears to be primarily allied with or dependent upon seasonal changes, as has been abundantly demonstrated by Darwin, Herbert Spencer, Laycock, and others. This seasonal periodicity of "heat" accounts for a corresponding periodicity in delivery, for, as is well known, many wild females bring forth their young at mild and favourable seasons, as spring, and not at inclement or unfruitful times. This is generally so in our domesticated animals when art does not interfere with their natural instincts; and, in truth, this primitive seasonal condition of the exercise of the generative function underlies the process of reproduction, even in the highest creatures. A trace of this seasonal influence is certainly still conspicuous in the greater tendency manifested by the human female to conceive at certain annual epochs; and it seems probable that this seasonal influence underlies the genesial function in all creatures, and is a relic and trace of a primitive or primordial condition governing reproduction.

We shall see that not only does woman most frequently begin her menstrual life in the summer months, but she brings forth her offspring more frequently in the spring than in other seasons, just as the lower animals do. Many years ago, I concluded that every woman had a law peculiar to herself, which governed the times of her bringing forth (and conceiving); that, in truth, she was more prone to bring forth at certain epochs than at others; and subsequent researches have not only abundantly confirmed this surmise, but established the accuracy of the forecast. The evidence is given in other lectures.

The influence of civilisation and domestication in expanding the reproductive powers is conspicuous. And yet the generative system, as Mr. Darwin has ably and conclusively shown, is highly sensitive to changes in the environment of the individual. Seemingly, the higher mental endowment of advanced human beings carries with it not only an augmented capacity for the reproduction of their own species, but also bestows a like advantage upon the creatures showing amenability to man's sway by flourishing under his dominion. Not alone does the human race increase, but man's flocks and

herds multiply prodigiously. Would that proportional care were observed in the breeding and propagation of the human species, as, *e.g.*, is taken in that of animals of merely commercial value !

(*To be continued.*)

RECENT RESEARCHES INTO THE PATHOLOGY OF GLANDERS.

In a *mémoire* read at the Paris Academy of Medicine in December last, and which was the joint production of MM. Bouchard, Capitan, and Charrin, the results are given of some researches, continued from November, 1881, into the nature of Glanders. After pointing out that Christot and Kiener were the first, in 1868, to discover the microbes in glanderous products, the authors of the memoir state that they have recognized the presence of these, not only in the parts exposed to the air—such as the nasal ulcers and pulmonary abscesses—but also in non-exposed parts, such as lymphatic glands, spleen and liver. The constant presence of these organisms, everywhere and at all times exhibiting the same characters, was a presumption in favour of the part they played in the pathogenesis of the disease.

In order to demonstrate that they really played this part, it was necessary to reproduce Glanders in an animal, especially an ass, by inoculating it with these microbes only, developed independently of a diseased horse, and absolutely free from anything else that might be derived from the latter. To effect this, the microbes had to be submitted to successive cultivators ; and they were successful in doing so from glanderous products derived from man, horse, and guinea-pig, in neutralised solution of extract of flesh, kept in a bath at a temperature of 37° Cent. By means of successive sowings or inoculations of the culture fluid, the microbe was cultivated in a state of purity for eight generations. Multiplication did not take place in tubes whose contents were kept from contact with the air ; and preliminary experiments showed that the first and second cultivations possessed the virulent properties of glander pus.

In July, 1882, a glandered horse was killed in the presence of the authors, and on the spot tubes containing culture fluid were inoculated with a fragment of a nasal ulcer ; while other tubes received each a small morsel of a glander nodule from the spleen. On the following day there was removed to tubes (which were immediately sealed) a portion of these primary cultivations, which were inoculated in two asses on July 10th, 1882. On July 19th, nine days after inoculation, the ass which had received the first cultivation from the nasal ulcer died, and its body offered well-marked glander lesions in the lungs and genital organs. On July 28th, eighteen days after inoculation, the ass which had received the first cultivation from the spleen nodule also succumbed. No glander nodules were found in the lungs ; ulcerative lesions were discovered in the upper part of the respiratory and digestive tracts.

Already on November 3rd, 1881, cultivations were made from the pus of an abscess opened in a man affected with Farcy, particulars of which have been already published (Thesis of M. Clement, Paris, 1881). A second cultivation of this pus was inoculated into three guinea-pigs, producing a disease from which two of them died—one in twenty, the other in twenty-four, days—with pulmonary and glandular glander lesions. The third guinea-pig was killed and it presented the same lesions. One of its lymphatic glands was employed to inoculate an ass with, and this animal appeared to

resist infection ; but when killed three months afterwards, there were found the pulmonary lesions of Chronic Glanders.

These facts were not considered conclusive, as only the first and second cultivations were employed, and because the virulent matter, placed in the first fluid, might be diluted in the first, and even in the second cultivation ; so that particles directly derived from the glandered subjects might have been inoculated, and not the organisms developed in the culture fluid. It was surmised that even a fourth cultivation should be considered suspicious in this respect.

The inoculations were therefore recommenced with the fifth cultivations, and a large number were made, all of which were equally demonstrative. The following is a series of these.

On August 11th, 1882, with a fifth cultivation, derived originally from the nasal ulcer of a glandered horse killed on July 4th, a large cat was inoculated ; this died on September 5th—twenty-five days after inoculation. It showed a suppurating tumour of the left testicle and the inguinal glands of the same side. The morbid lardaceous and purulent tissue, when examined microscopically, showed the characters of inflammatory tissue with interstitial suppuration.

On September 5th, when the autopsy was made, another cat was inoculated with a fragment of lymphatic gland from this dead one, and death took place on September 21st—sixteen days after inoculation. There was a chancre at the point of inoculation, swollen inguinal glands, and miliary abscesses in the lungs.

On September 21st, at the autopsy of this cat, a small portion of its lymphatic glands was inoculated into a small cat. This died on September 28th—seven days after inoculation—and, on examination, a chancre was found at the seat of inoculation, with nasal ulcerations and perforation of the nasal *septum*, and sub-periosteal abscess of the nasal bones, pulmonary abscesses and tumefied lymphatic glands.

On September 27th, while this cat was yet alive, a guinea-pig was inoculated with a few drops of sanguinolent serosity from the nasal swelling. This creature died on October 28th—thirty-one days after inoculation. There was also a chancre at the point of inoculation in this case, inflamed lymphatic glands on the same side, and pulmonary abscesses surrounded by a hæmorrhagic zone.

On November 1st the pus from one of the pulmonary abscesses of this guinea-pig was inoculated into an ass, which died on November 11th—ten days after inoculation ; the lungs were studded with acute glander-nodules.

In terminating their observations, the authors remark that the glanderous malady produced in the guinea-pigs by the inoculation of these cultivations, is absolutely the same, in a clinical and anatomical point of view, as the Glanders produced in the same species of animals by morbid products derived directly from glandered horses. The conclusions deduced from the preceding experiments are confirmed by others, which are not alluded to in detail, and which were made on sixty-one animals. It is asserted that Glanders is the second virulent disease attacking mankind, the parasitic nature of which is demonstrated, the other disease being Anthrax.

In the last number of the *Deutsche Medizin Wochenschrift* for 1882, Dr. Schütz, professor at the Berlin Veterinary School, and Dr. Löffler, assistant to Professor Koch, published the first results of the researches which they had made in common, at the Hygienic Institute of Berlin, on the best disinfecting agent to employ against Glanders, and particularly into the nature of that disease.

They at first examined, microscopically, stained sections of various specific lesions, as nodules from the lungs, liver, and spleen, and chancres or nodules

from the pituitary membrane. These sections, stained by a concentrated aqueous solution of methylene blue, washed in diluted acetic acid, dehydrated in absolute alcohol, and rendered transparent by cedar oil, showed here and there, in the midst of the tubercular elements, very fine bacilli, much resembling in form and dimensions the *Bacillus* of Tuberculosis discovered by Koch. These *Bacilli*, stained an intense blue, were the only microbes met with in these glander products. Having discovered this *Bacillus*, the professors had recourse to cultivation, and the culture fluid selected was serum of horses' blood—that animal being most frequently attacked by Glanders.

On September 14th, 1882, tubes filled with sterilised serum were inoculated by means of tuberculous granules, collected with due care from the lungs and spleen of a horse destroyed as glandered, and proved to be so at the autopsy. On the third day, the surface of the culture fluid presented minute flakes in the majority of the tubes. These flakes were composed, as subsequent microscopical examination after staining demonstrated, of an enormous quantity of Bacilli, in every respect the same as those observed in the specific nodules.

In order to prove that these Bacilli were really the cause of Glanders, it was necessary to inoculate animals susceptible of the disease, with the culture fluid so obtained. This was done, though only with the fluid of the fourth cultivation, in order to get rid of the objection that the inoculated fluid might contain traces of the original virus.

On October 14th, an old horse, apparently healthy, was inoculated with the fourth cultivation, in the mucous membrane of the nose and on both shoulders. On the third day there was fever; deep ulcers formed at the points of inoculation, and these were connected with the submaxillary and axillary lymphatic glands by nodular cords; so that after the eighth day the horse presented the classical tableau of inoculated Farcy. In about a month the ulcers commenced to cicatrize; the glands diminished in volume, and the animal became vigorous and lively. It was killed on November 25th, and the autopsy demonstrated:—1. On the pituitary membrane, nasal septum, and turbinated bones, there were numerous radiating, fibrous cicatrices. 2. In the lungs old hard nodules, fibrous and calcified, as well as a large number of fresh grey nodules, surrounded by a reddish zone. 3. The bronchial glands were hard and fibrous, caseous in the centre, and as large as an apple. The animal was, therefore, glandered when inoculated, and the recent lesions in the lungs could not be attributed to the inoculation with certainty. The experiment, therefore, was not satisfactory. A microscopical examination of the lesions found at the autopsy showed, in sections prepared as above stated, the presence of the same *Bacillus*, and inoculation of culture fluids gave the same results.

In the two other glandered horses identical results were noted, both in the presence of the Bacilli, and their cultivation in sterilised fluids.

Inoculation experiments with the culture fluid were made on other animal species beside the horse—as the rabbit, guinea-pig, and mouse. The results varied with the species. In the rabbit, sometimes Glanders developed with terrible intensity, rapidly invading all the viscera; sometimes it followed a chronic course, and was only manifested by local ulcerations and engorgement of vessels and lymphatic glands.

All the inoculations practised on *white* mice were ineffective, while, on the contrary, those made on *grey* or brown mice were in eight or ten days successful, glanderous nodules being developed, in which the characteristic Bacilli were readily found.

But it was the guinea-pig which yielded the most remarkable results. In three or four days, and in all cases, the inoculation wound became a deep

ulcer with indurated and excavated borders, and the neighbouring lymphatic glands enlarged to the size of a nut ; then, more or less rapidly, according to the quantity of fluid injected, there were manifested the indications of generalised disease, farcinous engorgements and ulcerations of lymphatic vessels, nodification of the testicles, mammæ, vulva, and ovaries, chancres on the pituitary membrane or trachea, and glanderous infiltration of all the viscera.

In all these lesions could be found, after staining, the specific *Bacilli*; any doubt in this respect was soon removed by cultivation of the morbid products.

Notwithstanding the concordance of all these facts, a decisive proof was yet required of the inoculability of the cultivated microbe in the horse. So, on November 28th, 1882, two healthy horses, aged respectively twenty and two years, were inoculated ; the first with fluid representing the *eighth* generation of virus obtained on September 14th, on both sides of the neck, the chest, and prepuce ; while the young horse was inoculated in the same regions, as well as on the nose, with fluid of the fifth cultivation from a nodule obtained from the testicle of a guinea-pig which died on November 8th, from the effects of inoculation with fourth cultivation of original virus. Both horses were inoculated by means of a Pravaz syringe, which deposited the virulent fluid in the subcutaneous connective tissue.

In a few days, there appeared at the seat of inoculation, hot, œdematous, diffused and painful swellings, the appetite disappeared, the hair stood erect, and the limbs became stiff. At the end of a week, nodulated cords united the lymphatic glands, and the swellings which ulcerated discharged a turbid yellowish-green pus. On the twelfth day, the young horse showed on its face a rounded chancre with excavated margin, and so deep as to expose the bone. At the same time, both animals had a discharge from the nostrils, and which formed greyish adherent crust around them, and the pituitary membrane was covered with small chancres with salient margins. Gradually the symptoms became more aggravated, and the old horse died on December 12th.

A *post-mortem* examination showed cutaneous chancres around the inoculated points ; nodular cords here and there ulcerated, connecting the chancres with the neighbouring lymphatic glands, which had acquired the volume of a hen's egg, and which, on section, offered a great number of yellow or grey nodules disseminated in a reddish-brown tissue infiltrated with serum. The pituitary ulcers extended through the mucous membrane, and had yellowish-white granulations at the bottom ; a similar chancre was found on the epiglottis ; the lungs were full of nodules, the size of a grain of millet-seed, formed of a semi-transparent greyish nucleus with a reddish areola. All these lesions could only be attributed to acute Glanders.

The following day, December 13th, the young horse, which was very debilitated, was killed. The autopsy gave the following:—Considerable cutaneous lesions in the form of ulcerations, inflamed lymphatic vessels and tumefied lymphatic glands as in the last case ; abundant infiltration of the subcutaneous connective tissues ; abscesses of the mastoido-humeralis, pectoral, abdominal, fascia-lata, and semi-membranosus muscles ; the pituitary membrane covered with ulcers, nodules, and fungous granulations ; the turbinated bones destroyed at their upper part by these lesions ; the lungs studded with grey, semi-transparent, miliary nodules surrounded by an areola ; voluminous, soft, bronchial glands, infiltrated with caseous nodules ; the spleen, liver, and kidneys hyperæmic and infiltrated, with turbid tumefaction of their elements.

In the opinion of the authors, these results absolutely confirm the opinion they acquired, as to the part played in the genesis of Glanders by the *Bacilli* observed in the substance of the glander nodules.

DIAGNOSTIC PROOF IN CASES OF SUSPECTED GLANDERS.*

THE above forms the title of a pamphlet by Professor Rudolf Molkentin, of the Russian Veterinary School at Dorpat, which has just come to hand. His object in undertaking the experiments detailed therein was to gather further information respecting the susceptibility of certain of the less valuable and smaller domesticated animals to the action of the Glanders contagium. It need scarcely be said that, provided we could readily infect, by inoculation, such animals as rabbits, guinea-pigs, dogs, or cats, we should be in possession of a power which would enable us to decide those doubtful cases which are by no means rare in practice.

In the opening chapter, Molkentin furnishes us with a tolerably exhaustive *résumé* of the work which has hitherto been done in the same direction. The various views which have been entertained as to the nature and transmissibility of this malady, from the days of Vegetius up to the present time, are recapitulated. The discovery, last year, of a Glanders bacillus, by Drs. Löffler and Schutz, is referred to, and whilst acknowledging the value and interest attached to this discovery, Professor Molkentin very properly points out certain circumstances which preclude busy practitioners from availing themselves of this aid to diagnosis. The reagents and colouring fluids required to stain the bacillus, the necessary manipulation, and the high powers requisite to identify it, are not always at the disposal of the general veterinary practitioner.

As a matter of fact, the method of inoculation is also impracticable as regards the profession in this country, owing to the stringent and vexatious nature of the rules laid down for the regulation of vivisection. Notwithstanding this fact, I cannot but think that the knowledge of what we might do, if permitted, will prove interesting.

As far back as 1821, we find Schilling successfully inoculating rabbits with glanderous matter; and since that date numerous other experimenters, notably Renault, Bouley, Gerlach, Leisering, Hertwig, Bollinger, Semmer, and recently Galtier, have turned their attention to the subject. Their results and conclusions, however, it must be confessed, are very contradictory, and therefore unsatisfactory; so that there was plenty of room for further experiments. Molkentin's experiments are, therefore, exceedingly welcome, especially as they bear out in many respects those of Galtier, performed in 1880-81.

Galtier† recommended the inoculation of rabbits with material derived from suspected animals, but confessed that many rabbits proved immune, and that the symptoms produced often resembled more those of purulent infection than Glanders. On this account, then, the inoculation of rabbits is not perfectly reliable.

The same observer‡ found, however, that dogs were more susceptible than rabbits, none of his numerous inoculations proving unsuccessful. The lesions, however, remained localized, and took the form of small ulcerating wounds, resembling Farcy ulcers, which eventually, however, healed and cicatrised. In some cases secondary ulcers made their appearance on the legs and along the back.

It is unnecessary for me to give the details of all Molkentin's experiments which were carried out on rabbits and dogs. The following particulars will, I think, suffice:—

Experiments with Rabbits.—Twenty-two rabbits were inoculated in various

* Communicated by W. F. Garside, M.R.C.V.S., Professor of Veterinary Science at the Royal Agricultural College, Cirencester.

† Rec. de Méd. Vét., No. 21, 1880.

‡ Archives Vét. d'Alfort, 1881.

ways by subcutaneous injection, by scarification, by removal of the epidermis, and by injection of the diluted nasal discharge of glandered horses into the nostrils. The results were in five cases positive, in seven negative, and in ten doubtful.

Experiments with Dogs.—Eight animals were experimented upon, inoculation being performed by injecting beneath the flank the diluted nasal discharge of a glandered horse, and by applying it to incisions made in the skin of both ears. In one or two cases, fluid taken from the swellings which appeared at the seat of inoculation in the successfully infected rabbits, was used. Five out of the eight dogs died, death resulting in twenty-eight, nineteen, five, six, and eight days respectively. The remaining three animals, however, became affected with Glanders, but the morbid lesions remained localized.

Molkentin sums up as follows :—Many rabbits possess immunity against the Glanders contagium, but are, on the other hand, extremely susceptible to the subcutaneous injection of purulent matter, perishing from pyæmia, septicæmia, and phlegmon. The symptoms resulting from the introduction into the system of glanderous discharges are often very similar to those seen in the above-mentioned diseases. In some few cases ulceration of the skin and nasal discharge certainly do occur, but it is very rare to find any alterations in the mucous membranes or internal organs. With such variable results, it is consequently impossible to rely upon the inoculation of rabbits as a test in cases of suspected Glanders in horses.

The inoculations practised on dogs were in every case successful, the operation being followed in several cases by the formation in the skin of small ulcerations with speckled bases, secreting an ichorous discharge. Emaciation rapidly occurred, and death resulted from metastasis to the internal organs, and consequent general Glanders. In the cases which recovered there was the same formation of ulcers, which, however, subsequently healed.

Young dogs are the most suitable subjects, and the results following inoculation are perfectly reliable, and therefore capable of affording valuable testimony as to the correctness of the diagnosis in cases of suspected Glanders.

The operation is best performed by subcutaneous injection, and the application of the infected discharge to the surface of a superficial wound.

INTERNATIONAL VETERINARY CONGRESS.

THIS congress will hold its first meeting on September 10th at the Hotel-de-Ville, Cureghem, Brussels; under the patronage of Leopold, King of the Belgians. The Minister of the Interior will preside at the meeting. The Organising Committee appear to have been very successful in their efforts so far, and one of the advantages they have been able to secure is a reduction of fifty per cent. in the railway fares of those who attend the Congress.

The number of Belgian subscribers is 163; foreign subscribers, 37; and honorary members, 7. The Belgian Minister for Foreign Affairs, in notifying to other Governments the holding of the proposed Congress, expresses a hope that they will send official representatives.

BRITISH VETERINARY ASSOCIATION.

WE would beg to remind the profession that the first meeting of this Association will be held on May 8th, the day after the annual meeting of the Royal College of Veterinary Surgeons. The meeting promises to be a great success, and the Organising Committee has been extremely fortunate in securing the beautiful and commodious lecture-room of the Society of Arts, John Street, Adelphi—one of the finest in London—for the transaction of its business.

A LICENSING VETERINARY COLLEGE FOR IRELAND.

THE attempt to establish a licensing Veterinary School in Dublin has not yet been abandoned, and, as will be seen from the following notice and correspondence, it is now proposed to establish the school in connection with the Medical Faculty of the Catholic University of Ireland, the question of endowment being left for future consideration. To the establishment of a Veterinary School—or a dozen of them—in Ireland there can be no objection, but the granting of diplomas would be fatal to the welfare of veterinary medicine and the interests of the public, not only in Ireland, but in Great Britain, and will be opposed by the entire body of the profession. The school, it will be noticed, is to be sectarian.

The following resolutions were passed at a meeting of the Medical Faculty of the Catholic University of Ireland, in the School of Medicine, Cecilia Street, Dublin, March 8th, Dr. Coppinger in the chair :—

Moved by Dr. LYONS, M.P., seconded by Dr. QUINLAN—

“That the standing orders be suspended in order that the following motion in reference to the proposed establishment by charter of an independent Irish Veterinary College may be considered, having regard to its importance in the present crisis from an outbreak of serious bovine disease.”

Moved by Mr. HAYES, seconded by Professor CAMPBELL—

“That this faculty hails with satisfaction the prospect of the establishment of an independent Irish Veterinary College to meet a long-recognised want in the educational system of Ireland; that it has pleasure in placing the resources of its school of medicine at the service of the proposed college; and that its professors will gladly receive into their classes all intending veterinary students, and will readily take their part in conducting the examination for the diplomas until further provision be made for the new college.”

Dr. LYONS, M.P., sends the following to the *Irish Sportsman* :—

“SIR,—I enclose you copy of letter which I have had the honour to address to Lord Spencer. His Excellency has been good enough to devote much time to the consideration of this very important subject, which, as your readers are aware, was brought fully in all its bearings under the notice of Earl Cowper by a very influential deputation of members of Parliament and other persons of distinction. It is unnecessary to go into the details of a question on which there is a consensus of opinion amongst all educational authorities in Ireland, and which deals with a subject of such vast financial importance to the country.

“Its public utility is again illustrated in a most pointed manner by the invasion of bovine and other maladies which strike at one of the most important interests in Ireland. The question of endowment is, no doubt, of great difficulty, but I believe I have succeeded in forming a plan for the working of the college without waiting for State help, which is only a question of time.

“It is of primary urgency to supply the want of veterinary education in

Ireland, and I trust all interested will do me the honour to support the proposal I have now made. United action will command success.—Faithfully yours,

“ROBERT D. LYONS.

“Merrion Square, *March 7th*, 1883.”

“Merrion Square, Dublin, *March 7th*, 1883.

“DEAR LORD SPENCER,—I fear that a letter of mine, sent with some newspapers to the Castle in the autumn, failed to reach your Excellency's hands, as I believe you left Dublin on that day.

“I then submitted to your Excellency the proposal to incorporate by charter a body of lay and professional gentlemen as a president and council of a Veterinary College, with powers to examine and grant diplomas, hold property, and do all necessary acts, leaving to the future the question of endowment.

“With the plan I proposed for utilizing the promised aid of some of the existing schools of medicine and hospitals, the basis of a high order of knowledge could be secured without expense to the State, while in the clinics of the eminent veterinary surgeons of this city the special knowledge of the diseases of horses and other animals could be obtained. It is thus feasible to start the college without any demand on the State, except for a charter. Once under way, I have no doubt whatever that its claims to public and Parliamentary recognition will only be a question of time.

“Trusting your Excellency will see your way to this practical step being taken in time to allow the many intending veterinary students who have waited so long and so anxiously for the initiation of the Irish Veterinary College to avail themselves of the approaching summer session in the medical schools, I have the honour to be, my dear Lord Spencer, your Excellency's faithful servant,

“R. D. LYONS.

“His Excellency the Earl Spencer.”

THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE SOCIETY.

A special general meeting of the above society was held at the Grosvenor Hotel, Manchester, on the 21st February, the President, Peter Taylor, Esq., in the chair.

There were also present Messrs. R. S. Reynolds, Thos. Greaves, Wm. Whittle, Wm. Woods, Thos. Taylor, Geo. Fleming, W. A. Taylor, Wm. Broughton, T. Hopkins, S. Locke, A. Santy, Capt. Russell, T. Briggs, W. Leather, C. W. Elam, E. H. Leach, E. Falkner, J. B. Wolstenholme, and the Hon. Sec.

The minutes of the last general meeting, as well as the minutes of the various Council meetings were read and confirmed.

The President then stated the object for which the meeting had been summoned, and called on the Treasurer for his financial statement, which was read and approved. Leave was given to the Treasurer to invest, in the names of the Trustees, a further sum of £600 in the Mersey Dock Bonds, thus raising the invested capital to £1900.

The President, in moving the alteration of Rule 2, said, “I have considered it my duty to call a general meeting to take into consideration the wording of Rule 2: ‘That any Veterinary Medical Association making a grant of £20 or upwards to the funds shall be entitled to elect one of their members a Life Governor for each £20 voted to the funds.’”

"Now the Midland Veterinary Medical Association having lost their representative—the late Mr. Carless, of Stafford, whose death we all deplore—claim a right to elect another in his place. My colleagues in office differed with me as to the reading of this rule, and my friend, Mr. Greaves, submitted it to his solicitor, who also gave judgment against me.

"Having received an invitation to attend a meeting of the Midland Society at Birmingham in January last, at which the consideration of this rule was part of the business, I attended, when we had a most interesting discussion on the point. I told them that to myself this rule seemed an anomaly, and that a special general meeting should be called to consider the advisability of altering it. The anomaly is this—that a donor of £10 can become a Life Governor; therefore, a society could purchase for £20 two Life Governorships, but for a gift of £20 they are debarred, by the reading of my colleagues, from electing another in the place of the one deceased.

"To settle this dispute, I propose altering Rule 2, by adding the following after the words 'for each £20 voted to the funds,' 'and in the event of the decease of such Life Governor, the society he represented may elect another Life Governor in his place without additional payment.' This alteration to be retrospective. This alteration of the rule I now propose, with a sincere wish that the same may be for the best interests of the Society.

"As you have heard by the minutes of our Council meetings, we have defended settled, and arranged many unpleasant cases, to the honour and advantage of our professional brethren. Our finances through this have been drawn upon, both for defence and benevolent purposes. Yet after payment of these, I am proud to say that we show a glorious balance of upwards of £2000.

"This meeting will not be called upon to elect office-bearers, as the present officers have, according to our rules, yet two years to serve. I am pleased to see such a good meeting, and most heartily thank you for your kind attendance, and at the same time assure you that the most ardent wish of all your officers is that success and honour shall mark our progress."

The motion, having been seconded by Mr. Wood, was after considerable discussion carried unanimously.

After a vote of thanks to the President, the meeting terminated.

GEORGE MORGAN, *Hon. Sec.*

THE BENEVOLENT AND DEFENCE FUNDS.

LIST OF SUBSCRIPTIONS TO BENEVOLENT AND DEFENCE FUNDS, FROM 9TH MARCH, 1882, TO 9TH MARCH, 1883.

1882.					1883.				
		£	s.	d.					
March	15.	A. L. Gibbons	1	1	0	January	3.	W. Bower	... 1 1 0
„	17.	G. Ball and Son	2	2	0	„	3.	J. C. James	... 0 10 6
„	21.	T. Proctor	1	1	0	„	3.	James Rowe	... 1 1 0
„	23.	P. M. Walker	0	10	6	„	3.	R. Reynolds	... 1 1 0
„	23.	C. Muir, Cardiff	1	1	0	„	3.	J. J. and J.	
„	26.	T. Pratt, Ripon	1	1	0			Freeman	... 1 11 6
„	29.	Hugh Ferguson	1	1	0	„	3.	R. Cox	... 1 1 0
„	29.	T. Hopkins	1	1	0	„	3.	H. Batt and Son	2 2 0
„	31.	F. W. Barling	0	10	6	„	3.	J. Markham	... 0 10 6
April	27.	J. Woodger, jun.	1	1	0	„	3.	W. Carless	... 1 1 0
May	31.	E. Stanley	1	1	0	„	3.	G. Cave	... 0 10 6
June	10.	M. Trigger	0	10	6	„	3.	F. G. Samson	1 1 0
Oct.	30.	W. G. Schofield	0	10	6	„	3.	F. T. Stanley	... 1 1 0
Nov.	11.	J. Briggs	1	1	0	„	3.	J. H. Goodall	... 1 1 0

National Veterinary Benevolent and Defence Funds. 273

		£	s.	d.
January 3.	G. Newsome ...	0	10	6
"	4. J. D. Overed ...	0	10	6
"	4. M. J. Roberts...	1	1	0
"	4. E. P. Rothwell	1	1	0
"	4. H. J. Cartwright and Son ...	2	2	0
"	4. R. Roberts ...	1	1	0
"	9. G. Banham ...	1	1	0
"	9. A. L. Gibson...	1	1	0
"	9. S. H. Withers	1	1	0
"	9. Jas. Bale, Otley	0	10	6
"	9. E. Nuttall ...	0	10	6
"	9. A. G. Thornley	1	1	0
"	9. T. Collins ...	0	10	6
"	9. A. H. Santy ...	1	1	0
"	9. Mr. Gregory ...	0	10	6
"	9. T. Blakeway ...	1	1	0
"	11. G. Morgan ...	1	1	0
"	12. R. C. Edwards	0	10	6
"	12. W. Cawthorn ..	0	10	6
"	12. C. Crowhurst...	0	10	6
"	12. J. W. Axe ...	1	1	0
"	15. W. F. Peacock	1	1	0
"	16. Sir F. Fitzwygram	1	0	0
"	19. T. G. Chesterman	1	1	0
"	19. C. Moir ...	0	10	6
"	23. Storrar and Son	1	1	0
"	23. W. Woods ...	0	10	6
"	23. J. Carter... ..	0	10	6
"	23. W. Whittle ...	0	10	6
"	24. T. D. Broad ...	1	1	0
"	24. H. Hogben ...	0	10	6
"	24. T. Augers ...	1	1	0
"	25. Thos. Walley...	0	10	6
"	25. T. A. Dollar ...	1	1	0
"	28. J. Woodger ...	1	1	0
"	28. F. Danby ...	0	10	6

			£	s.	d.
Jan.	28.	E. Price	5	5	0
"	28.	H. R. Perrins	1	1	0
"	28.	J. Russell ...	0	10	6
"	28.	R. Triggars ...	1	1	0
"	28.	Mr. Meek ...	1	1	0
"	28.	Mr. Hill	1	1	0
"	28.	H. Olver ...	0	10	6
"	28.	Mr. Over ...	0	10	6
"	28.	Mr. Beddard...	1	1	0
"	30.	F. W. Wragg...	1	1	0
"	30.	H. Bland ...	1	1	0
"	30.	A. Rushall ...	1	1	0
Febry.	8.	B. Wolstenholme	1	1	0
"	8.	T. Aubury ...	0	10	6
"	13.	W. Elam ...	1	1	0
"	13.	J. Ferguson ...	0	10	6
"	14.	J. M. Axe ...	0	10	6
"	14.	Wm. Broughton	0	10	6
"	14.	P. M. Walker	0	10	6
"	14.	P. Walker ...	0	10	6
"	14.	P. Deighton ...	0	10	6
"	14.	J. E. Scrivens	0	10	6
"	14.	Mr. Pyatt... ..	1	1	0
"	14.	Thos. Secker	0	10	6
"	20.	Edwin Faulkner	1	1	0
"	20.	Thos. Greaves	1	1	0
"	21.	P. Taylor... ..	1	1	0
"	21.	W. A. Taylor	1	1	0
"	21.	Tom Taylor ...	1	1	0
"	21.	H. Ferguson ...	1	1	0
"	21.	S. Leach ...	0	10	6
"	22.	H. Thompson	1	1	0
March	5.	J. B. Taylor ...	1	1	0
"	6.	J. W. Anderton	0	10	6
"	6.	G. Morgan ...	1	1	0

£91 6 0.

THE NATIONAL VETERINARY BENEVOLENT AND MUTUAL
DEFENCE SOCIETY.

FINANCIAL STATEMENT FROM 9TH MARCH, 1882, TO 9TH MARCH, 1883.

The Veterinary Mutual Defence Fund.

CASH RECEIVED.		£	s.	d.
Balance in Bank	9th March, 1882 ..	425	18	11
Subscriptions from	9th March, 1882,			
	to 9th March, 1883	89	15	0
Bank Interest	June 24th, 1882 ..	4	16	5
„	December 23rd, 1882..	5	5	1
		<hr/>		
		£525	15	5

CASH PAID.		£	s.	d.
1882.				
May 22nd.—Cash to Mr. A. Olver,				
Rugby.. .. .	10	0	0	
Aug. 26th.— „ to W. Wolstenholme	7	0	0	
1883.				
Jany. 13th.—500 Application Forms ..	0	8	6	
March 8th.—Cash Invested in Birken-				
head Docks	400	0	0	
March 9th.—Secretary's Expenses ..	4	13	7	
„ 9th.—Treasurer's „ ..	0	10	6	
„ 9th.—Cash in Bank ..	103	2	10	
	£525	15	5	

Amount of Subscriptions unpaid, £122 17s.

Audited and found correct,

March 9th, 1883.

JOHN B. WOLSTENHOLME.

The National Veterinary Benevolent Fund.

CASH RECEIVED.	£	s.	d.
Invested in Birkenhead Docks ..	1,300	0	0
Second Amount Invested in Docks,			
March 8th, 1883	600	0	0
Balance in Bank, 9th March, 1882 ..	165	11	7
Subscriptions from Members from 9th			
March, 1882, to 9th March, 1883 ..	1	11	0
Bank Interest to June 24th, 1882 ..	1	19	5
,, to Dec. 23rd, 1882 ..	2	4	6
Mersey Dock Coupons, June 24th,			
1882	25	9	2
Mersey Dock Coupons, Dec. 23rd,			
1882	25	4	3
	<u>£2,122</u>	<u>19</u>	<u>11</u>

CASH PAID.	£	s.	d.
1882.			
March 23rd.—Cash to Widow Beal ..	2	0	0
Nov. 24th.—Cash to Brown's Orphans	5	0	0
1883.			
Feb. 14.—Cash to	10	0	0
March 8th.—Cash Invested in Birken-			
head Docks	200	0	0
March 8th Dock Bonds	1,900	0	0
,, 9th Cash in Bank	5	19	11
	<u>£2,122</u>	<u>19</u>	<u>11</u>

Audited and found correct,

March 9th, 1883.

JOHN B. WOLSTENHOLME.

Knott Mill, Manchester.

THOMAS GREAVES, *Hon. Treasurer.*

Proceedings of Veterinary Medical Societies, &c

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE twenty-first annual meeting and dinner of this Association was held at the Grosvenor Hotel, Manchester, on Wednesday, February 21st.

The following forty members and friends were present, viz.:—The President, Mr. Wm. Woods, in the chair; Mr. George Fleming, President, Royal College of Veterinary Surgeons; Professor Williams; Messrs. R. S. Reynolds, Thos. Greaves, Peter Taylor, Wm. Whittle, Dr. Martin, W. A. Taylor, T. Taylor, J. W. T. Moore, W. Leather, C. W. Elam, S. Jackson, E. Kitchen, W. J. Welsby, S. Locke, T. Hopkin, A. Lawson, Jno. Lawson, C. W. Ingram, E. Faulkner, A. F. Appleton, Wm. Dacre, A. Munro, Jas. Lambert, E. H. Leach, Wm. Woods, Jun., A. M. Michaelis, Thos. Briggs, W. Packman, J. B. Polding, B. H. Russell, H. Ferguson, A. W. Briggs, A. H. Santy, T. B. Stone, Wm. Broughton, Wm. Bromley, and J. B. Wolstenholme.

The SECRETARY read the list of replies stating inability to attend, also the minutes of the last meeting, which were confirmed.

Mr. PETER TAYLOR then referred to the death of Mr. W. A. Cartwright, of Whitchurch, an honorary member of this Association, and paid a fitting tribute to the memory of one who so long and earnestly strove for the advancement of the profession of his choice. Mr. Taylor concluded his remarks by moving, "That a letter of condolence be sent to the relatives of the deceased gentleman." This was seconded by Mr. THOS. GREAVES, and supported by the President of the Royal College of Veterinary Surgeons, both of whom bore testimony to the ability and high aim of our late friend. The motion was carried unanimously.

The TREASURER then handed the President a letter he had received announcing the death of Mr. Thos. S. Faulkner, of Rochdale, also a member of this society, and moved that a letter of condolence be sent to his relatives. This was seconded by the SECRETARY, and carried unanimously.

Mr. S. LOCKE nominated for membership Mr. Ed. Kitchen, M.R.C.V.S., of Liverpool.

Mr. WM. LEATHER proposed, and Mr. C. W. ELAM seconded, "That Mr. Alexander Bain, M.R.C.V.S., of Liverpool, be a member of this Association." Carried unanimously.

The SECRETARY proposed, and the TREASURER seconded, "That Mr. Wm. Davidson, M.R.C.V.S., of Manchester, be a member of this Association." Carried unanimously.

Mr. WM. LEATHER moved that Rule II. be so amended as to read as follows: "That the meetings shall be convened by circular, giving each member four clear days' notice of each meeting, which shall be held on the second Wednesday in the months of March, June, September, and December, on premises that shall be fixed from time to time by the Association." Seconded by Mr. WM. WHITTLE, and carried unanimously.

Mr. WHITTLE then withdrew the motion of which he gave notice at last meeting.

The annual election of members of Council, Royal College of Veterinary Surgeons, was then brought forward, and Mr. THOS. GREAVES, after alluding to the very regular attendance and sound policy of Mr. William Whittle, who represents this Association, and retires by rotation in May next, proposed that Mr. Whittle be the candidate to represent this Association. Mr. PETER TAYLOR seconded the motion, and it was carried unanimously.

Mr. WHITTLE then thanked the Association for again honouring him in their selection.

The PRESIDENT then read the following inaugural address:—

Gentlemen,—I must thank you all for the position in which I find myself to-day, a position the honour of which is at any time one to be coveted, but at the present, the twenty-first anniversary of the Society's existence, one of the highest honours a society could bestow upon any one of its members.

I am pleased, and I congratulate the Society upon the fact, that those gentlemen who were its earliest promoters and who founded the Society are still amongst its most earnest workers and devoted adherents, thus showing that they are not ashamed of their offspring. Some there were who nursed it as a child, and who have now passed away, whom the Society remembers with the liveliest feelings of gratitude and good-will, and who well deserve a good name from the whole profession for this act alone, even if they had not another claim upon the profession's remembrance.

This was the first society of veterinary surgeons formed in England, and, as exemplifying the maxim "What Lancashire thinks to-day all England will think to-morrow," the whole of the United Kingdom has followed in its wake, and there are now societies in almost every part of her Majesty's dominions. It would take too long a time, and it is too well known to you all, to tell the good these societies accomplish. They bring together veterinary surgeons upon the broad basis of common fellowship; they are the best method of intercommunication and interchange of ideas; they are an incentive particularly to the younger members to keep up their scientific knowledge by reading; and from them, I might almost say from this, has sprung another kind of society, of equal importance, although in another branch—I mean the Benevolent and Defence Society, one to which every member of the veterinary profession ought to belong, which has done and which will still continue to do a large amount of good.

I congratulate the Society upon its present prosperity. I believe that it is not only the father of them all in age, but that it is, and I hope will long continue, the father of them all in strength. A further development of these societies is now awaiting your approval and support. The British National Veterinary Association, a natural sequence of the success attending the National Congress held last year, is in course of formation. I shall say little concerning it, because there is printed matter explaining its objects, except that it is not intended to supplant local Associations: this it can never do; but it is intended to hold meetings periodically, to unite the strength and ability of the whole profession, where prearranged subjects, both complex and

simple, relating not only to science, but to the general welfare of the profession, may be explained and discussed by those who have special ability in that direction. I believe that local societies have nothing to fear from it, that it will live or die entirely according to its merits, and that it deserves our cordial support.

Having spoken of some good the societies have done and are still doing, I would like to say a few words regarding one improvement which still lies open to us. We require to become a still greater political force, to extract from Government that which is due to us in the way of Government recognition. The Government are always very tardy at recognising the good qualities of any public body, and it is only by strong, united, and combined action such as these societies give that we can hope to obtain what we require. True, we have by the almost single exertions of Mr. Fleming obtained an Act which will in future years be of immense benefit; but I believe there is not another member of the profession who could have secured to us that Act with the little assistance that Mr. Fleming received. We are now threatened with a change in the number of Government veterinary surgeons in India, and that change not by way of a much-desired and very necessary increase, but by a reduction, which I think we ought to make it our duty collectively to endeavour to prevent.

We have recently made an alteration in the board of examiners, and I confess it was not without some feeling of trepidation that I saw the old and honoured names of the members of the sister profession swept from our examining board; but I think a careful study of the new examiners will show that in making that change we have not in any way jeopardized the welfare of the profession. There are, and always have been, those who will carp and criticise at every innovation, and it is necessary that it should be so; but what I wish to impress upon all is, that it rests with the profession collectively as to whether their board of examiners is a good one. Let the profession send the best members they have to represent them in the Council, and then, depend upon it, the examining board will be a strong one and a good one; and just as the composition of the examining board is in the hands of the veterinary profession, so the composition of the veterinary profession for the future is in the hands of the examining board. With them the future welfare of the profession largely rests, and I trust and feel that not a single examiner will enter upon his duties without a due sense of the responsibility with which he is entrusted. The profession, as a body, is rising in the public estimation more rapidly than its most zealous advocates of five and-twenty years ago would ever have dared to hope. It is now recognised that there are among veterinary surgeons men of the highest scientific ability, and it remains for us and for the youth of our profession to watch that no retrograde step mar our progress.

A scientific discovery has been made by one of our number (Prof. Williams) in connection with that peculiar disease affecting sheep known as "Louping Ill," which, if found to be absolutely or nearly correct, will bring the veterinary profession to the fore in a most marked manner, and will radically change the opinions of scientific men as to the development of vegetable organisms within the human body. I heartily wish the discoverer every success, and trust that it will not be the last success he will have of a similar kind.

I would like now just to say a few words anent the recent spread of Foot-and-mouth Disease. I believe the cause of the disease becoming epizootic, in my district at any rate, is due to the large importation of Irish pigs. I have not been able in all cases to trace the origin of the disease in those cattle coming under my observation, but I have in some cases traced it undoubtedly to recently imported Irish pigs, and I have stopped Irish pigs on the highway

suffering from the disease ; and when, added to this, it is authoritatively announced from Dublin that the disease is fearfully prevalent, I think it behoves the authorities at once to take steps to prevent its further spread from this source, for though it is probably one of the least malignant of the contagious diseases amongst cattle with which we are familiar, it tells very heavily upon the dairymen and those who supply our towns with milk.

I would like, in conclusion, to say a few words concerning a society which has in one way and another been recently brought with more than usual prominence before our notice. The Royal Society for the Prevention of Cruelty to Animals is undoubtedly doing good work, if one will only consider the amount of pain cruelly inflicted upon the lower animals before it came into existence, and the greatly decreased amount since. It is highly necessary for the welfare of our profession that we should be considered by the general public as the protectors of the lower animals, that where pain in whatsoever form is unnecessarily inflicted we should boldly step forward and denounce it, even at the cost, as it may at the time appear, of some popularity. I think we should support with our whole strength the wellbeing of the Society, and I trust it may not be considered that I am in any way hostile to it, but rather the reverse, in making a criticism or two upon it, with a view to its improvement. The inspectors, as a rule, I believe to be conscientious and trustworthy men ; but there is a sort of rivalry amongst them, that the inspector in a district shall have as many or more cases come before the court, and as many or more convictions, as his predecessor. This, I think, and I say it without any thought of personal reference, is apt to lead to a system of bringing before the magistrates minor cases which might very well be let alone, simply in order to increase the sum total of cases per annum. Now I think that if, instead of taking the number of convictions an officer obtains as evidence that he has been doing his duty, the Society would appoint in each locality a small committee, of which one or more veterinary surgeons should be members, to report periodically as to the manner in which the Society's officer performed his duty, it would be a plan better calculated to ensure protection to the lower animals, to the public, and to the officer himself, than what seems to be the present system. Of course, it may be said that any man stopped by an officer can bring his horse to a veterinary surgeon and get his opinion upon the case ; but it must be remembered that a poor ignorant carter has often such a wholesome dread of the Society's officer that whatever he says is law. I know that in some places officers are deterred from obtaining in any but very serious cases a professional opinion, because the magistrates object to veterinary surgeons giving evidence, on the plea that it is very expensive for the delinquent to have to pay a professional fee in addition to a fine ; but it cuts both ways—it is protective as well as expensive, and there are degrees of cruelty of which, in some cases, few Society's inspectors are capable of judging correctly. Moreover, it is not impossible to imagine that sometimes the anxiety to obtain a conviction may be such as to make an officer unintentionally overdraw his case. Hence I think that, in spite of even magisterial opposition, a veterinary surgeon's opinion ought in most cases to be obtained, even though it should not afterwards be necessary for that veterinary surgeon to appear in court.

Mr. GREAVES moved, "That the best thanks of this meeting be given our President for his admirable address." Seconded by Mr. WM. WHITTLE, and carried unanimously.

Mr. GREAVES then read the following report on the formation of the National Veterinary Association, of which he, along with Mr. Thos. Briggs, had been appointed to the provisional committee ; viz. :—

The President has alluded to a very important subject, and I, being one of your appointed delegates to attend the preliminary meeting of the National Veterinary Medical Association, held in London in October last, have to report that I, along with my worthy colleague Mr. Briggs, attended. The meeting was composed of delegates from each of the Veterinary Medical Associations in England, Ireland, and Scotland, also the army and the colleges. It was unanimously resolved to establish a National Veterinary Medical Association, to hold its meetings once a year at various important centres, the first held the day after the annual meeting of the profession in London. The objects of the Association to be to promote and advance veterinary science, and maintain the honour and interests of the veterinary profession. I felt it was an object worthy of approval, and one that ought to be cordially supported by all who take an interest in the onward progress of our profession. It will tend to stir up emulation amongst our best members ; it will quicken the life in the profession ; it is unquestionably a step in the right direction. I remember the grand success of the Congress held in London in 1867 ; it was a concentration of all the Veterinary Medical Associations, the colleges, and profession, and again in 1881, at which latter meeting this and the Liverpool Association stood aloof, in consequence of the fact that the Congress retained a rule not to allow those members of the profession who held only the Highland Society's certificate to enter on the same terms as those holding the diploma of the Royal College of Veterinary Surgeons. Now all this is changed—that rule is expunged—there is now no longer any excuse whatever to hold aloof from it. I cannot think but that every well-wisher of his profession will give it his cordial support. The view I take of it is this : that it will attract and be sustained by the most eminent, active, earnest, and energetic members of each Association in the three kingdoms, and, in fact, the whole of the profession ; much valuable knowledge must be developed ; it must inevitably raise our status, and by giving us greater power, will redound to the honour, credit, and advantage of our common profession ; and therefore that this Association should cordially co-operate with it, and render what assistance it can in developing the valuable results which must ensue.

It is well known the high importance which is attached to Lancashire, that “whatever Lancashire thinks to-day all England thinks to-morrow ;” this is a proud, an honourable and enviable character for any county to enjoy ; and allow me to say that everywhere, wherever I have had the proud privilege of attending meetings throughout England, Ireland, and Scotland, I have done my best to hold the Lancashire Veterinary Medical Association up in that honourable position ; and for the purpose of keeping this and all other provincial Associations well to the front, I proposed at the meeting in London that the president and secretary of each Association should be elected upon the Council. I want these Associations to take the lead, and be copartners in the concern, to assume their rightful and legitimate position, and not be conspicuous by their absence. The National Veterinary Medical Association can be again a grand success without this Association, but I have an implicit belief, and urge that this Association will keep up its dignity and its honour by taking its rightful stand in this laudable movement, and closely associate itself with this band of advanced thinkers. By this and other Associations cordially espousing the cause, its success will be ensured. Such action does not necessarily tie each member, or any member, in fact, to become a subscriber or to attend the meetings. Every one who subscribes 10s. 6d. annually is entitled to attend the annual meetings, and will be supplied with a copy of each paper read, and a verbatim report of the discussion which takes place on each and every subject introduced, giving him the most recent, scientific, and valuable information on all subjects, such being compiled by the most eminent men in our profession. Therefore I beg to move, “That this, the

first, the largest, and most influential Association in the three kingdoms, espouse the cause, and decide to co-operate cordially with the National Association, with a view to ensure its success."

Mr. GEORGE FLEMING, Mr. BRIGGS, and other gentlemen followed, and pointed out and advanced the claims of the new Association.

This concluded the business of the meeting ; the company then adjourned to dinner, and a most enjoyable evening was spent.

The usual quarterly meeting was held at the Blackfriars Hotel, Manchester, on March 14th ; Mr. Wm. Woods, President, in the chair.

There were also the following members present, viz., Messrs. Peter Taylor, Thos. Greaves, Wm. Whittle, T. Hopkin, H. Ferguson, Wm. Leather, S. Locke, E. Faulkner, W. A. Taylor, W. Dacre, Jno. Lawson, J. Hart, T. Briggs, T. B. Cockshoot, J. W. Ingram, A. M. Michaelis, E. H. Leach, Jno. Litt, and J. B. Wolstenholme. Also visitors—Messrs. A. Leather, F. F. Crawford, Wormald, Horrocks, and Rice.

The minutes of the last meeting were read and confirmed, and the letters of excuse presented.

Mr. S. LOCKE proposed that "Mr. Ed. Kitchen, of Liverpool, be a member of this Association"; seconded by Mr. W. Leather, and carried unanimously.

The SECRETARY nominated Mr. Horrocks, M.R.C.V.S., of Burnley.

Mr. PETER TAYLOR then moved that "the earnest and warmest thanks of this Association be given to Mr. Wm. Whittle for the able and attentive manner in which he has represented our interests in the Council, R.C.V.S." This was appropriately seconded by Mr. Greaves, and carried unanimously.

Mr. Whittle having replied, the PRESIDENT brought forward the subject for the evening's discussion, *i.e.*, "The Buying and Selling of Horses and their Examination as to Soundness," as introduced by Mr. Hopkin in a paper read at the last ordinary meeting. A very interesting and lengthy discussion followed, in which nearly all the members present joined, and every shade of professional opinion was represented, Mr. William Leather drawing particular attention to the examination of the molar teeth by exhibiting the lower jaw of a cart-horse, in which was a supernumary molar associated with Caries.

Mr. HOPKIN replied, and then related a case in which a cart-horse was injured behind the scapula with the point of a shaft in collision. The only apparent mischief was a small flesh wound in the triceps extensor muscle, and the horse continued at work for some time. Ultimately, however, the respiration became seriously affected if put to any exertion, although in the stable the breathing was normal, the chest was resonant on percussion, and the respiratory murmur audible on auscultation. On one occasion the temperature reached 103° F. and the pulse remained at about 50; the horse continued to eat well, and was lively. In the end he was destroyed, and the autopsy revealed the presence of a large quantity of serous fluid in the mediastinum, which had forcibly compressed the lungs against the ribs, to which they were adherent; Periostitis and some Ostitis had evidently existed in the fifth and sixth ribs, from their condition in the specimens shown.

Mr. GREAVES proposed that "a vote of thanks be given to Mr. Hopkin for his valuable paper." This was seconded by the President and carried unanimously.

J. B. WOLSTENHOLME, *Hon. Sec.*

SCOTTISH METROPOLITAN VETERINARY MEDICAL ASSOCIATION.

THE annual meeting was held in the London Hotel, Edinburgh; the retiring President, Mr. C. Cunningham Slateford, in the chair. Present—

Professors Walley, Lewis, McFadyean, Baird, Williams, McQueen, and Hunter; Messrs. Philips, Cameron, Boyd, McArthur, Mitchell, Storie, W. O. Williams, Aitken, Moir, Constable, Thompson, Donald, Connachie, Robinson, Borthwick, Fairbairn, Hutton, and McFarlane; a number of students and the representatives of the Press, and the Hon. Secretary.

The minutes of the previous meeting having been approved, the Hon. Secretary and Treasurer (Mr. R. Rutherford) reported that during the past year they had increased their membership by nineteen, three of whom were admitted that day. The society was entirely clear of debt, and they had in the bank £23.

The office-bearers for the ensuing year were elected as follow:—President, Mr. C. Philips, A.V.D., 3rd Dragoon Guards; Vice-Presidents, Mr. John Storie, East Linton; Principal Walley, and Professor Lewis, Edinburgh; Hon. Secretary and Treasurer, Mr. Rutherford.

The following gentlemen were elected members:—Mr. Johnstone, Peebles; Mr. Hepburn, Coldstream; Mr. McArthur, Hawick.

The following new members were nominated for election at next meeting:—Mr. C. Philips, 3rd Dragoon Guards (at present an honorary member of the Society); and Mr. Clark, Secretary of the Scottish Central Veterinary Association.

The retiring President then delivered his valedictory address, in the course of which he remarked that the year 1882 had been an interesting one for the society, and they had made satisfactory progress. He reviewed the work of the association for the past year, and glanced at the different papers that had been read, speaking at some length on the importance of paying careful attention to the treatment of Pink-eye, and illustrating his remarks by a case that had come under his own observation. In vacating the chair he urged the society to do what they could to secure the election of Mr. Robinson, Greenock, and Mr. Borthwick, Kirkliston, as Scotch representatives on the Council of the Royal College of Veterinary Surgeons.

Mr. PHILIPS, the newly-elected President, having taken the chair, returned thanks for the honour conferred on himself and the Army Veterinary Department by his election as President. He would spare no personal exertions to follow in the footsteps of his worthy predecessor, and he hoped that when he quitted office it would be found that the Association had not retrograded, that it had not even stood still, but that it had advanced, in accordance with its motto, which was the promotion of amity among its members, the elevation of the social standing of the profession, and the discussion of scientific topics. (Applause.)

Principal WALLEY suggested that the members should look over the rules of the Association, and see wherein they might be improved, so as to place the Association on a still better footing. He also brought under the notice of the meeting the case of the widow and family of a veterinary surgeon in Ireland, who had been left destitute through the sudden death of the husband and father, who had been a student at Dick's Royal College, Edinburgh; and he invited subscriptions towards their assistance.

The meeting then proceeded to discuss the paper read at last meeting by Mr. H. Thompson, Aspatria, on "Salt on Land as a Preventive of Parasitic Diseases."

Professor WALLEY then read the following paper, by A. E. Macgillivray, Esq., M.R.C.V.S., Banff, N.B., on "Tubercular Stomatitis":—

Mr. Chairman and Gentlemen,—I felt considerably flattered on receipt of a request, from your Secretary and Mr. Walley, to appear before you with a paper on Tubercular Stomatitis. In my own mind I at once resolved to comply, but on consideration I came to a different conclusion, namely, to send you a paper on this subject, and let one of yourselves read it. On com-

municating this resolution to your Secretary and Mr. Walley, they agreed to same, and the latter kindly offered to read my communication. So, with all humility, I bring before you the following thoughts.

Bovine Tubercular Stomatitis, or, in other words, tubercle in the mouth and contiguous parts of cattle, is a subject which has for the last two years been almost continually before the profession. I had the honour of introducing the subject in the leading paper in the VETERINARY JOURNAL for January, 1881, and since then the matter has been discussed rather profusely both at home and abroad.

My attention was first drawn to the matter on perusing an article in one of the French veterinary periodicals, in which the writer described the disease as being of a gangrenous nature, and gave very full and interesting details as to symptoms and treatment, etc. In my first and second papers on this topic I combated this French veterinarian's ideas, and persisted in asserting that the disease was of tubercular origin. Several members of the profession, in short communications in our two veterinary magazines, supported me in my views, and brought forward various plans of treatment.

In a paper read before the Epidemiological Society of London in June, 1881, the Editor of the VETERINARY JOURNAL suggested the idea that the disease under our consideration was more of a diphtheritic than tubercular nature, and quoted largely from the writings of a Continental professor in support of his theory. I need not here reiterate all the plausible arguments brought forward in proof of this peculiar Stomatitis being neither more nor less than a phase of Diphtheria; suffice it to say that in a third communication on the subject I clearly showed the utter impossibility of such being the case.

In Mr. J. H. Steel's excellent "Manual of Bovine Pathology", this disease is described as occurring in the scrofulous subjects of *Omphalitis*, which it is said to accompany or follow. Mr. Steel calls it Stomatitis Gangrenosa. Here I merely note the scrofulous tendency of the patients.

In the VETERINARY JOURNAL for June, 1882, there appeared a well-written paper on "Muco-gastro-enteritis," the author of which insisted that Tubercular Stomatitis (so called) was merely the result or accompaniment of this "Muco-gastro-enteritis," and that it was very easily eradicated, the diseased deposits simply consisting of coagulated mucus and saliva, or the contents of stomach regurgitated and coagulated in the mouth. This theory was easily disposed of, its impossibility being discernible by even the meanest capacity.

In Hill's "Bovine Medicine and Surgery" we find this Stomatitis described as being gangrenous, cancerous, tubercular, and diphtheritic—rather comprehensive and complicated to be true. Mr. Hill considers that it "arises from tuberculous diathesis," but that, sometimes descending to the "pharynx and larynx, it assumes a diphtheritic type, with which, he is of opinion, the disease is associated."

In our veterinary periodicals, within the last three or four months, our attention has been repeatedly called to "a new disease," or the so-called *Actinomykosis Bovis*.* Now this new disease, or Actinomykosis, we are led to believe, is the proper and final designation for that malady which I have hitherto named Tubercular Stomatitis.

In passing I may perhaps be allowed to remark that this so-called "new disease" is simply the very ancient *Indurated or Schirrhous Tongue*, which generally occurs in bovines over one year old, being, in so far as my

* In no veterinary periodical, to our knowledge, has Actinomykosis been designated a "new disease," which it is not; but a reference to this Journal will show that it is named "a new infectious disease," which it is.—ED. V.J.

experience goes, most common in two-year-olds. I have never seen it in calves.

Here I leave this "new disease," and return to what unfortunately is as old as Tubercle itself, namely, Tubercular Stomatitis. This is a disease generally observed in juvenile bovines; in fact, as a rule, it may be said to be confined to early life; a case will, however, now and again crop up in adults, but such are very rare, create far less disturbance, and are easier to treat, than in juveniles.

Bovine Tubercular Stomatitis may then be set down as a disease of infancy, so to speak, its most typical forms being found in calves under three months old, and most commonly observed inside cheeks, on tongue, gums, etc. Whatever position within the mouth it may occupy, however, I have always made myself pretty certain that it originated in the milk supply, or from direct contagion. The danger of partaking of milk from tuberculous cows is now so well known and acknowledged that it requires very little stretch of the imagination to see the great risk with which calves daily imbibe tubercle-laden milk, their tender age rendering them more susceptible to the inroads of the tubercular virus. What more likely than the inception of such virus in the delicate mucous membrane of the mouth?

Tubercular lesions, deposits, and ulcerations, in mucous membranes and subjacent tissues, are nothing very uncommon—in fact, quite the opposite; and besides, such lesions have experimentally been produced in all parts of the mouth by feeding with tubercular material. The only wonder, then, considering the number of tuberculous cows, is how so few cases of this Stomatitis occur. No doubt in a good few cases that do take place a predisposition to Tubercle exists in the patient, thus rendering inception of the virus more likely. From observations made last summer, I am certain the virus gains access to mucous membrane superficially, and if successfully implanted, so to say, in a short time involves the sub-mucous tissues. At the seat of inception, or, as might be said, inoculation, there first of all appears a bright red spot, which under a medium object-glass has a slightly velvety appearance; this extends, and a little swelling or bulging at the infected spot is soon apparent. This bulging spot at first gets darker in colour, but gradually changes to a dirty grey, which, if left untouched, slowly alters to a more or less distinctly marked, and sometimes even brilliant yellow. When the disease attacks the anterior part or tip of tongue the yellow colour is generally quite bright.

During last summer I had five cases in young calves at one farm, and it was in one of these that I was enabled to make closer and more extensive observations as to the pathological changes which generally occur during the course of this disease than I had ever done before. The contagium in this case had gained admission per the mucous membrane of gum in upper jaw between the dental pad and lip. The attention of the servant in charge of the calves was drawn to this youngster by a slightly abnormal flow of saliva, which, there being already four others labouring under Tubercular Stomatitis, caused an examination to be made, when the diseased spot was discovered where I have indicated. Next day I examined same, and found a bright red spot about the size of a silver fourpenny-piece between dental pad and lip. This spot was slightly raised above the level of the surrounding mucous membrane, was very hyperdermic, velvety in appearance, and, to make a long story short, passed through all the changes above described in the course of a fortnight after my visit, when it was treated successfully after the usual fashion by scraping and applying the Sol. Cupri Sulph.

Unfortunately, the ravages of Tubercle did not end here in this little patient—it was only three weeks old to commence with—for, about a fortnight after it got over the Stomatitis, it was seized with a similar tubercular

affection between the digits of both fore feet. The lumps of half-cheesy, half-fibrous material which were dug out from between the digits closely resembled that scraped from the gum, but the disease dipped far deeper between the digits than at the gum. One foot got over this affection, but the other never did so; and the poor little patient died from pulmonary Tuberculosis when about four months old. The tubercular diathesis is very prevalent on this farm, consequently this youngster very likely had the tubercular taint from the first, and was thus more open to the inception of its virus—the gum becoming affected from the milk or by contact with some of the other four diseased creatures; while it is quite open to argue that the interdigital disease owed its origin to the drizzling of the virus-laden saliva from the creature's own diseased mouth? Be this as it may, however, I am quite certain of three things—(1) that this youngster suffered from this peculiar Stomatitis, and from a disease of a similar character in the interdigital space of both fore feet; (2) that on minute examination the diseased material from both gum and interdigital space presented the (hitherto) well-known characteristics of Tubercle; and (3) that the patient collapsed from the effects of true Pulmonary Tuberculosis when four months old. I offer no further comment on this “undoubted record of the life and death” of a tubercle-infested bovine juvenile.

It has often been questioned as to whether or not Tubercle can become developed in such situations as the mucous membrane of the cheeks, tongue, gums, etc.; and it must be confessed that the difficulty of access in these parts is no doubt great; but, in the light of the recent researches, discoveries, and experiments of Toussaint and Koch, such difficulty almost entirely disappears. Koch has apparently discovered, cultivated, and experimented with the *bacillus* of Tubercle, and found that this *bacillus* (*living*) or its *spores*, when separated from the other products or ingredients of what is known as “tubercular matter,” produces (by inoculation) true Tuberculosis. This fact simplifies the question of the inception by mucous membranes of the so-called tubercular virus, *i.e.*, the *bacillus* of Tubercle or its *spores*.

No doubt these spores play a heavy part in the dissemination of Tubercle, more especially through such a medium as milk. Now, I have always insisted on the milk supply being the chief agent in the production of the Stomatitis under discussion, and have chronicled a great many instances in which there was no other way of accounting for its appearance.

More than this, however, if the Tubercle-virus actually consist, as asserted by Koch, of genuine and distinctly marked bacilli and spores, the possibility of the contagious nature of Tubercular Stomatitis is at once rendered not only apparent, but almost certain; for in all cases of this disease where we find the yellow cheesy stage well developed, these bacilli, with their innumerable spores, must exist literally in myriads, ready to go abroad “in quest of fresh fields and pastures new” with every discharge of drizzling saliva.

In connection with the question of the contagious nature of this disease, I have authentic information of a rather formidable outbreak of this Stomatitis on a farm where Tubercle is by no means unknown. Every year there are from fifty to sixty calves brought forth on this farm; and every year this Stomatitis (or “*the Cheesate*,” as my informant calls it) puts in appearance in one way or another. Well, one year there were as many as twenty-six cases amongst *the calves* in this herd! The cattleman who attended on these calves is, I assure you, quite an adept at scraping and clearing away the cheesy lumps so characteristic of Tubercular Stomatitis.

In a recent number of the *Veterinarian*, I referred to the case of a cow suckling two calves: one was her own, and the other (a twin) from a neigh-

bouring farm. This stranger calf was attacked with Stomatitis, and had a cheesy deposit in the middle third of tongue laterally ; in a short time the cow was seized after same fashion on the opposite side of the tongue. Both were treated and recovered. This twin's mother and the other twin were quite healthy and free from Tubercle ; from whence, then, the Stomatitis ? I could not make it out for a long time ; but about two months afterwards I was called upon to treat this same cow for Pulmonary Tuberculosis ; and at the present date this cow and both the calves have been for some three months under ground, all three having succumbed to the ravages of Tubercle !

Just allow me to quote one case more, which occurred in the practice of a friend of mine last summer. Here the patient was a calf which was slipped (aborted) in the seventh month of pregnancy. Shortly after calving the mother died from general Tuberculosis ; and the youngster was attacked by this peculiar Stomatitis, and as it was evidently a worthless subject, was put out of the way—after being kept some days for my inspection. Unfortunately, I found it impossible to accomplish an eighty-mile journey to see even such a “unique case” of this tuberculous mouth disease. Being calved in the seventh month, it was consequently affected with this Stomatitis before, in the usual course of nature, it ought to have been in the world. In addition to the mouth lesions, this calf was completely infested with Tubercle.

The chief point in dispute, during the discussions which have taken place in reference to this Stomatitis, is as to whether or not it is of a tuberculous nature. I have always maintained the affirmative, and given, in my opinion, good, sufficient, and reliable grounds for so doing. In every case coming under my notice I have always been able to trace the same either directly or indirectly to a tubercular source ; and besides, I have over and over again examined, in so far as my knowledge of microscopic investigation enabled me, the diseased material from the mouths of the subjects of this affection, and the results always tended to confirm my ideas of the tuberculous nature of this Stomatitis. More than this, however, at the time I wrote my third communication on this topic, adverting to the impossibility of its being Diphtheria, I submitted a portion of the “cheesy material,” dug from the tongue of a young calf, to a medical gentleman of extensive experience and undoubted ability in the diagnosis and treatment of Diphtheria, and after minutely examining the same under the microscope, this gentleman informed me that, in his opinion, the “cheesy material” was neither more nor less than tubercular matter, and presented no resemblance to any diphtheritic products which ever came under his notice. This was so far satisfactory.

There is one thing which we would require to bear in mind when studying the general character and appearance of tubercular deposit on, in, or under the mucous membrane of any part of the mouth, namely, that we cannot expect to see the same *typical tubercle* as that presented on the pleura pulmonalis vel costalis ; this, when we consider the position, exposure, and almost constant movement (or even attrition) of the parts affected, is utterly impossible. On this rock, I have no doubt, a great many superficial observers have grounded their erroneous ideas as to the nature of this tuberculous affection of the mouth in juvenile bovines.

I have already described my ideas as to the *modus operandi* by which the tubercle-virus gains admission to the mucous membrane of the mouth, as also the after consequences ; and in connection with this part of the subject I may here state that, in so far as regards calves, the subjects of this Stomatitis, I have never met with *isolated tubercles* deeply embedded in the muscular substance of the tongue : wherever situated, and of whatever size, the tubercular mass has invariably had connection with the surface, and

been quite visible to the naked eye. Around this diseased deposit there is generally, as might be expected, a little swelling and slight inflammatory action; but we have decidedly no general enlargement nor induration invading the tongue where that organ is affected; neither have I ever observed atrophy to accompany or follow this affection in calves.

Some writers on this subject deny the prevalence of Tubercle in bovine juveniles, or any other juveniles very likely, and on this hypothesis build their denial of the tuberculous nature of this Stomatitis. I need scarcely reiterate what I have often already said in reference to the ravages of *Tubercle* in the young of every species, human and brute; for wherever, or in whatever species, the opportunity of infection or contagion by Tubercle is afforded, *there* we shall find, in such extremely susceptible hosts as *juveniles*, the ravages of Tubercle most deadly. And in such subjects need we observe that the mucous membrane of the digestive system, from end to end, is the most likely to receive or become affected by this fatal virus of Tubercle? As bearing on this point, I might refer to the already-mentioned calf, slipped in the seventh month of pregnancy, which was killed while suffering from this disease, and found to be otherwise infested with Tubercle. I may also be allowed to state that only this morning, I received a note from a friend of mine in the South of England, an M.R.C.V.S., saying that on Saturday last he made a *post-mortem* on a pure Oxford Down lamb, *which died when three days old*, and found its lungs "quite studded with small tubercles." He adds that he is much bothered with scrofulous disease of the joints and glands in his flock of Oxford Downs, more especially the lambs.

Approaching the subject of the treatment of this malady in calves, we are again opposed by the non-tubercular theorists with the remark that, "if the disease be Tubercle, what's the use of treating it? We may get rid of the local lesions externally, but what of the constitutional?" etc. Now I am quite aware that if once Tubercle has fairly a hold of the system, to talk of treating or eradicating the same is simply talking of what no one in his senses would ever propose doing. I may be allowed to remark, however, that in Tubercular Stomatitis the lesions are not only external and easily got at, but the causative virus has only recently been implanted there from external sources, and very likely has no further hold of the system. Therefore, if for no other reason, I would go in for treatment; but there are other reasons, as, for example, when one is called to treat a calf for a mouth lesion, which is perhaps easily seen to be of tubercular nature, it will not do to shake one's head, and, muttering "Tubercle!" order it to be killed—with, perhaps, an eye to a *post-mortem*. No, I say; treat at once energetically.

On examining your patient, you will find a profuse discharge of saliva, very foetid breath; and, if tongue be affected, mouth slightly open; if anterior part of lower jaw, the contiguous lip will be swollen; if inside cheek, the outside of same will bulge a little, and so on. You now open the mouth, and very likely at once detect *somewhere* a lesion such as I have already described. Almost invariably, the mass of Tubercle is confined to one spot; and herein it differs most remarkably from the "new disease," the so-called Actinomykosis, in which you find the "nodules and nests" scattered about here and there throughout the entire body of the tongue. Well, having found this lesion, or greyish-yellow-looking lump, the best plan is to scrape it as thoroughly out as you possibly can, and apply Sol. Cupri Sulph. or Tinct. Ferri Mur. to the remaining ulcerous-looking sore. It will generally be found necessary to repeat this rather rough, but ultimately successful treatment.

I have chronicled a few instances where Tubercle afterwards appeared in other parts, such as lungs, salivary glands, testicles, spermatic cord, etc., of animals which had, *when calves*, been successfully treated for Tubercular Stomatitis. Such cases only tend further to confirm my ideas as to the true nature of this Stomatitis.

In conclusion, gentlemen, I have considered it best to give you my thoughts in this simple form, as I saw no necessity to enter into a scientifically-divided treatise on this disease, giving history, geographical distribution, pathology, symptoms, diagnosis, etc., as I am candidly of opinion that we have merely to deal with a single phase of the too well-known and greatly to be dreaded malady—Tuberculosis !

Principal WALLEY said he dissented from some of the views put forward by Mr. Macgillivray. In the case of the Oxford Down lambs alluded to, for instance, it was well known that they could scarcely examine the lungs of lambs without finding tuberculous matter, but that was simply due to the irritation produced by the embryo of the strongylus. He never yet saw Tubercle in sheep, and he had always held that ovine stock resisted it. Granted that the disease of which Mr. Macgillivray wrote was Tubercular Stomatitis, what was the use of treating it? He held that an animal showing signs of Tubercle should be immediately killed, and should not be used either for breeding purposes or for human food. They might get rid of the local lesions, but breeding animals would transmit the tendency to their offspring, and it was better to destroy them at once than try to cure them.

It was agreed to adjourn the discussion on Mr. Macgillivray's paper till next meeting, and, on the motion of Principal Williams, a vote of thanks was in the meantime accorded him.

The Royal College.

Mr. CAMERON, Berwick, said it was desirable that they should know the views of the candidates for their representation at the Council of the Royal Veterinary College.

Principal WILLIAMS agreed with Mr. Cameron, and said he was seeking re-election to the Council board at the hands of the Yorkshire Society, and if returned he would do his best to watch over the interests of the profession. He strongly objected to the proposal to increase the examination fees of students, so long as they were, as at present, ample to meet the expenditure and leave a handsome surplus. (Applause.) He looked upon it as simply disgraceful that the examining board, composed of men who, like himself, had risen from the ranks, and knew the value of a £5 note, should propose to raise the fees of struggling students, with poor parents, who had nothing but their own exertions to depend on for a livelihood. (Applause.) He thought, however, the number of examiners should be increased, and they might be doubled without entailing any extra expenditure on the College.

On the motion of Principal WALLEY, a vote of thanks was given to the retiring President and Vice-Presidents for their services during the past year.

Interesting Cases.

Mr. OWEN WILLIAMS submitted a specimen of *echinococcus veterinorum*, one of nine removed from the liver of a horse ; and a unique case of *cœnurus cerebralis*, found in the connective tissue of the thigh of a rabbit, and which was supposed to exist only in sheep.

Annual Dinner.

The members afterwards dined together, about thirty gentlemen being present. The chair was occupied by the President of the association, Mr. Philips ; and Principal Walley, one of the Vice-Presidents, discharged the duties of croupier. During dinner, and in the course of the evening, the band of the 3rd Dragoon Guards performed selections of music.

After an excellent dinner, the CHAIRMAN gave "The Queen and the Royal Family."

The CROUPIER proposed "The Navy, Army, and Reserve Forces," for which Mr. Robinson, Mr. Nicholson, and Mr. Macfarlane respectively responded.

Principal WILLIAMS proposed the health of the retiring President, who had always been a warm worker for the Scottish section of the profession. He spoke highly of the energy and devotion of Mr. Cunningham, and expressed the pleasure with which he had listened to him examining students.

Mr. CUNNINGHAM made an appropriate reply, in the course of which he said that, while he went in for a united profession, he also desired justice alike for England, Scotland, and Ireland; but when they found that all the board of examiners and twenty-eight of the Council resided in England, he thought that a very unfair representation. (Applause.)

Mr. ROBINSON proposed "The Scottish Metropolitan Veterinary Medical Association," mentioning that he was not only one of those who assisted at its inauguration, but he was also one of the founders of the West of Scotland Association, which was the parent of all the others in the kingdom.

The CHAIRMAN suitably acknowledged the toast, remarking that the profession was rapidly approaching the position it ought to occupy, and the value of the papers and subjects discussed by that and kindred societies was beginning to be felt throughout the country.

Mr. THOMPSON gave "The Schools," and Professor Lewis "The Visitors," after which a pleasant evening was brought to a close.

R. RUTHERFORD, *Hon. Sec.*

CENTRAL VETERINARY MEDICAL SOCIETY.

THE meeting of the above society was held on the 1st March, at Red Lion Square, Mr. J. Woodger occupying the chair. The other Fellows present were Messrs. T. Burrell, A. Broad, J. Broad, Arthur Broad, A. R. Charles, G. R. Dudgeon, G. Gray, H. J. Hancock, W. Hunting, T. S. Price, J. Rowe, W. Roots, F. G. Samson, and H. King Shaw.

Mr. SAMSON exhibited a small renal calculus, with the kidney of the dog from which it was taken. After a careful *post-mortem* examination, he could discover no other cause for the animal's death. The symptoms shown had been occasional constipation, pain on pressure over the loins, loss of appetite, and great thirst. Some discussion followed upon the question of the cause of death, and, in answer to queries, Mr. Samson stated that the body was well nourished, no wasting had occurred, no blood was voided with the urine, and the stomach showed no evidence of Gastritis or any abnormality.

From the latter statement Mr. ROWE said he felt compelled to express dissent. He thought there must have been a toneless, flaccid condition of the gastric muscular coat, such as he invariably found exist when dogs had suffered from extreme thirst, with vomition after drinking water.

Mr. BROAD showed the head of a collie dog, eight months old; upon the palate, lips, and tongue were a great number of warty growths, most of them exceeding a quarter of an inch in diameter, and many being in clusters, especially on the dorsum of the tongue; they extended on the mucous membrane as far back as the posterior part of the fauces. Treatment was not continued long enough to determine whether they would reappear after excision.

An essay on "Contracted Feet in Horses," written by Mr C. Sheather, was then read. The essayist chiefly confined his remarks to contraction as a disease, pure and simple; a state of foot brought about by many causes, among which he enumerated inactivity, hot stables, and a bad system of shoeing. As an illustration of inactivity producing what he termed atrophy of the feet, he said he knew a stable of eight horses which

had been for a long period with scarcely any exercise but a short daily walk : all had now contracted feet. He minutely described the characters and peculiarities of the contracted foot, and the altered gait produced, and particularized the treatment to be adopted.

College Building Fund.

At a meeting of Council of the Central Veterinary Medical Society, on March 1st, it was unanimously resolved to make a donation of fifty guineas to the "Building Fund" of the Royal College of Veterinary Surgeons.

ALFRED BROAD, *Secretary.*

NORFOLK AND EASTERN COUNTIES VETERINARY
MEDICAL ASSOCIATION.

THE tenth half-yearly meeting of the above Association was held at the Norfolk Hotel, Norwich, on February 13th, 1883, under the presidency of Mr. J. D. Overed. The members present included Messrs. A. H. Santy and F. Low, Norwich ; W. Shipley, Gt. Yarmouth ; T. Auger, Wymondham ; E. Barker, St. Faith's ; J. Hammond, Bale ; J. K. Gooch, Holt ; R. Howard, Thetford ; D. G. Hunting, Loddon ; G. C. Hunting, Stalham ; S. Smith, Lowestoft ; H. Newson, Beccles ; and the Secretary.

Letters were received from several members regretting their inability to attend.

The minutes of the last meeting were read and confirmed, and the treasurer's accounts adopted, by which a balance of £18 18s. 4d. was shown to the credit of the Association.

The officers of the Association were unanimously re-elected to their respective offices, and Mr. R. S. Barcham, M.R.C.V.S., Paston, near North Walsham, was elected a member of the Association.

Mr. SANTY, who had kindly undertaken to collect subscriptions to the "Fleming Testimonial Fund," reported that he had transmitted the sum of £15 to the treasurer on behalf of that object, with the names of the subscribers : and the president (in the unavoidable absence of Mr. G. A. Banham) drew the attention of those present to the claims of the National Veterinary Association to the support of the members, several of whom promised to subscribe.

Mr. W. SHIPLEY (the senior inspector in the county of Norfolk), at the request of the president, then introduced, as a subject for discussion by the members, the Contagious Diseases (Animals) Act as in operation in this county, where none but duly qualified men are appointed veterinary inspectors. The number of these is about twenty, each having a well-defined district, comprising a certain amount of parishes, under his jurisdiction, and for which he is responsible to the local authority for the due observance of the Act and the Orders in Council when issued.

Mr. Shipley first briefly noticed Cattle Plague, which, happily, was practically unknown to many junior members of the profession, having for some years past been eradicated from this kingdom, and with our present knowledge of the nature of this disease, and with the regulations now in force he did not think it was likely to recur ; but, should it unhappily do so, measures short, sharp, and decisive would be employed to stamp it out. As to Contagious Pleuro-Pneumonia in cattle, which once prevailed so extensively in this country, and inflicted such serious losses upon farmers and others, the Act had been productive of great benefit, as the number of cases was now reduced to a minimum. In his own district (which was an extensive one), he had not seen a case for two years. Foot-and-mouth Disease, or Epizootic Eczema, was a disease which every now and again appeared in

our midst, and gave rise to much anxiety, inconvenience, and indirect loss to the British agriculturist and stock-owner. It was essentially an imported disease, and might, he thought, be permanently eradicated if more stringent measures were adopted and greater caution exercised in the importation of foreign stock from infected countries. On the first appearance of disease they could not act with too much promptitude, and here the Act was altogether defective, and certainly did not meet the necessities of the case ; much valuable time was lost, and the disease, instead of being nipped in the bud, was disseminated in various directions, and allowed to spread its ravages far and near. Under the existing regulations, if an animal is discovered in a public market diseased, that animal can alone be slaughtered, while those in contact with it are allowed to be removed, carrying the disease with them wherever they go, and creating new centres of infection.

Sheep-scab has considerably decreased under the operation of the Act, and is very seldom seen in this part of the country. Nevertheless, when it does appear in our midst, it is a disease which requires very careful attention, and extreme caution should be observed in giving a certificate of recovery. Sheep-pox is not likely to trouble us. Swine Fever has not prevailed to any serious extent of late, and the Act seems able effectually to deal with this disease when it does exist.

Glanders and Farcy happily are seldom seen in this county, and when it is brought under our notice, our duty is clearly indicated, and the pole-axe is the only remedy allowed. But he considered it a great injustice that no compensation to the owner was awarded in these cases.

An animated discussion followed, in which most of the members took part, an opinion being generally entertained that Hydrophobia and anthracoid diseases should be included in the Act ; that more care should be taken to prevent the introduction of disease by foreign animals ; that animals in contact with those suffering from contagious disease should be included in the operation of the Act ; that the owners of animals dying, or slaughtered (when suffering from contagious disease) by order of the local authority, should be compensated ; that the Inspector should be empowered to put the Act in force immediately upon receiving information from any source, of the existence of contagious disease in his district ; that a chief Inspector should be appointed for every county, who might be consulted by the local Inspector in any case of doubt or difficulty in the discharge of his duties. That every duly-qualified veterinary surgeon should be appointed Inspector for the immediate neighbourhood in which he resides. The usual votes of thanks terminated the proceedings.

J. D. OVERED, *Hon. Sec.*

MONTREAL VETERINARY MEDICAL ASSOCIATION.

THE fortnightly meeting of this association was held on February 8th in the lecture-room of the Veterinary College, Professor McEachran in the chair. Besides a large number of students and veterinary surgeons, there were present Ald. Fairbairn, Mr. Bickerdyke, Mr. Morgan, Mr. Versailles, and others interested in the subject of discussion—inspection of meat and abattoirs. After routine business, Mr. BELL read an exhaustive paper on “Navicular Disease ;” Mr. Clement reported the operation of lithotomy on a horse, performed on Monday last, at the College, by the Principal, and exhibited the calculus, weighing three-and-a-half ounces, the horse being now considered out of danger, and about to be discharged. Mr. DAUBIGNY then read a paper, in French, on “Meat Inspection and Abattoirs,” in which he pointed out the defects of the inspection as at present carried on at the abattoirs, urged the necessity of *ante-mortem* as well as *post-mortem*

examination by scientific inspectors, who should be microscopists, so as to enable them to detect the presence of parasitic diseases. He noticed at length the thorough system followed by the Governments of France and Germany, and in conclusion, urged that the inspectors should be well paid, so that they should be independent, and they should have the moral support of the community, besides the proper legal authority, to carry out thorough inspection in the public interest. The paper was a very able and scientific exposition of the subject, which was listened to with marked attention, and called forth eulogistic remarks by Ald. Fairbairn, Mr. Bickerdyke, Mr. Morgan, and others, who urged improvements in the bye-laws giving inspectors power of confiscation, moving cattle markets to the abattoirs, having cattle kept twenty-four hours before being killed.

Dr. McEACHRAN, in a few remarks on the subject, referred to its great importance. One of the most important duties for a college like this was to prepare the students to become thorough sanitarians. Meat inspection was a most important sanitary question. There could be no doubt that scientific inspection was the best mode. Years ago it was laughed at, but to-day it was gaining many supporters. He referred to the fact that pork from the United States was shut out from Germany and France because these countries knew that there was no inspection in the United States. It remained for Canada, Dr. McEachran said, to open up this field, and thus gain an immense trade with these countries. He said that scientific inspection would be the very backbone of the butchers' trade, who would lose nothing by its adoption. He expressed the opinion that the inspectors should all have the power of confiscation, as without this power their inspection was worthless; and he hoped that the agitation for this improvement would be kept up until it was obtained. He was also of opinion that slaughtering outside the city limits should be abolished, and that no animal should be slaughtered for human food until it had rested twenty-four hours.

On motion of Ald. FAIRBAIRN, seconded by Dr. ALLOWAY, a vote of thanks was returned to the lecturer for his interesting paper, and the meeting then adjourned.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

At the monthly Council held on March 7th Colonel Kingscote presented the following report drawn up by Professor Robertson respecting the Foot-and-mouth experiments at the Royal Veterinary College:—

Since the last report a fresh trial has been made in the same direction as the previous experiments, and on the same lines, viz., testing the susceptibility of home-bred animals to be contaminated directly from material yielded by the imported. This time the experiment has been attended with results clear and positive.

In the beginning of December, 1882, having obtained two yearling steers, these were placed in clean and previously prepared boxes, and daily observations made as to their general health and internal temperature.

On the 12th December a quantity of saliva and other secretions of the mouth, obtained from cattle slaughtered at Deptford while suffering from the fever, was obtained, and at 5 p.m. a portion of this was dropped on the muzzles of both steers, their state of health being at that time apparently good—the temperature of No. 1 103° F., of No. 2 102° F. Twenty-four hours afterwards both animals were feeding well, although exhibiting a trifling rise in temperature. On the morning of the 14th No. 1 was dull, not disposed to rise, and taking little food, the temperature 105.4° F. No. 2 seemed in every respect natural. Towards evening No. 1 showed a little frothy saliva at the angles of the mouth, with an occasional cough, but no

appearance of vesicles on the buccal membrane. The morning following, this animal gave unmistakable evidence of being very ill: it was not inclined to rise, refused food; the temperature was now at its height, 106.3° Fahr.; while over the tongue, dental pad, and buccal membrane were several well-developed vesicles. These latter did not show between the digits or around the coronet until the day following, the 16th. At this time several of those in the mouth had ruptured. From the 15th to the 19th this animal's temperature continued high, settling on the latter date at 101° Fahr.

From the period of the rupture of the first vesicles until the 21st, a wash of 5 per cent. of salicylic acid in a solution of acetate of ammonia, which was afterwards diluted with an equal quantity of water, was employed for the local lesions. This seemed to expedite their healing; not, however, I believe, more than some other mild astringents do.

On the morning of the 17th, finding that No. 2 steer showed no evidence of being affected from the employment of the saliva on the 12th, a little of the same material from his fellow, now in the height of the disease, was taken, and gently smeared over his muzzle.

No indication of disturbance occurred until the morning of the 22nd, when, besides being somewhat dull and disinclined to eat, the internal temperature rose to 103° F. Vesication on mouth and feet appeared next day. Although this animal seemed to suffer more from the local lesions than his fellow, the temperature never reached the same height, 104.6° F. being its maximum.

On the 29th of December a yearling steer which had been reared at the College, but had not been in contact with the affected animals, except that he was attended by the man who waited upon these—not, however, being fed or watered from the same vessels—showed symptoms of the fever: in a few days he passed through the different phases of the disease in a similar manner to the inoculated.

On the 28th of January, when the animals had fairly recovered from the induced fever, a fresh supply of saliva was procured from the same source as the first, and sprinkled over the muzzles of both animals as before; also, and at the same time, sixty minims of the liquid were injected into the subcutaneous tissue in the inferior part of the neck of ox No. 2. Succeeding this treatment no indications of general disturbance followed, with the exception of a slight elevation of temperature. On the 30th a circumscribed swelling of two or three inches in diameter, and very tender, appeared around the puncture which had been made in the skin of the neck; this in a few days began to discharge a little disagreeably smelling fluid, and continued to do so for a week, shortly after which time the local infiltration had entirely disappeared.

These two animals have been sold, and two others purchased. With these latter it is now intended to try the effects of the direct conveyance into the blood stream of the disease-bearing fluid of the vesicles, with the object of determining whether a modified fever may be produced, which shall confer a protection from the natural fever.—I have the honour to be, my lords and gentlemen, your obedient servant,

W. ROBERTSON.

This report was adopted, and Sir Brandreth Gibbs was added to the Committee.

Sir MATTHEW WHITE RIDLEY said that, if in order, he should like to call the attention of the Council to the spread of Foot-and-mouth Disease throughout the country, and to ask whether it was not their duty to take some action with a view to impress upon the Government the necessity of doing something in the same direction as was recommended by the Royal Commission on Agriculture. He believed that 11,000 or 12,000 animals were reported to be diseased throughout the country, and they all knew

how England was blockaded against Ireland, Scotland, and neighbouring countries. It really seemed to him that such a condition of things had been reached that it was their duty to approach the Government, and to ask them to carry out a further step to prevent the importation of any cargoes of live animals from countries as to which they were not satisfied that there was no Foot-and-mouth Disease. In the case of Pleuropneumonia he believed it to be very nearly possible to prevent the importation of that disease by slaughtering at the port of debarkation, but it was different with Foot-and-mouth disease, which was so contagious and so easily spread that very little good came of slaughtering at the port. At the Northumberland County Sessions they thought of taking some action in the matter, and he told the magistrates that he should ask the Council of the Royal Agricultural Society whether they did not think it their duty to ask for the total and absolute prevention of the importation of all live animals from countries in which the Privy Council was not satisfied that no Foot-and-mouth Disease existed. He need not enlarge upon the importance of preventing the spread of this disease. It was important not only to the farmer, but to the consumer, because the continuance of the disease must tend very largely to increase the price of meat. In view of the serious state of things—the serious restrictions upon the agricultural community which are now imposed, and which have no practical result; in view of the insecurity of slaughter at the port of debarkation, it was their duty to ask the Prime Minister to receive a deputation on the subject. It was quite true that the Privy Council had been active, but in spite of their care it was impossible to prevent the spread of the disease under the existing regulations. He ventured to propose, “That, in view of the great spread of Foot-and-mouth Disease throughout the country, the Prime Minister be asked to receive a deputation from the Society, for the purpose of urging upon the Government the necessity of taking such further steps as will prevent this disease being imported from foreign countries.”

Earl CATHCART remarked that in Yorkshire they were blockaded in their own farms; they could not move animals except as meat slaughtered for the market. That state of affairs had been in existence for some little time.

The Earl of RAVENSWORTH pointed out how much the public is suffering in consequence of the disease, and observed that the channels by which it is spread are so subtle and so numerous that there seemed to be no effective mode of preventing the extension of the disease except by adopting some such plan as that contemplated by the resolution.

Col. KINGSCOTE seconded the motion. He would be the last person, he said, to do anything that would tend to enhance the price of meat to the consumer; but, at the same time, he knew full well what the agricultural community was suffering from this horrible and insidious disease, and he had no hesitation in saying that if this disease could be stopped, and if the Privy Council were enabled and when enabled would carry out the restrictions, not to allow cattle to come from foreign countries where disease existed, although the first operation of that measure might enhance the price of meat for a very short time, in a few months—so greatly would the dead-meat trade have increased—the price would go down again. The dead-meat trade had never been properly developed, and never would be under the existing regulations. This disease was brought to England, month after month, from foreign countries, and it would never be got rid of until the importation of animals from countries where the disease existed was prohibited. As regards the restrictions now in force, there was one fault he found with local authorities, viz., that a few days' delay always occurred when the disease broke out before

the restrictions were put into force. He wished that some means could be adopted to make it imperative upon local authorities within twenty-four hours after the disease broke out to make a certain area round that place.

Mr. RAWLENCE mentioned a case that occurred a fortnight ago at Bristol. A large cattle-dealer in his neighbourhood was at Bristol, and in the market he saw two animals evidently suffering from Foot-and-mouth Disease, and they were put into a cattle-truck, and sent to Reading to be slaughtered. No easier mode of spreading the disease could be devised.

The PRESIDENT: That was the fault of the Bristol local authorities.

Sir MASSEY LOPES cordially agreed with Sir Matthew Ridley's motion.

Mr. WAKEFIELD was very glad that the matter had been brought forward. It was discussed yesterday at the Chamber of Agriculture, and figures were then given to show that the importation of live meat is not so great as is generally supposed by the consumer. The figures showed that the importation of live as to dead was as one to two—*i.e.*, about one-third of the meat imported is live, and two-thirds dead. What proportion that bore to the meat of the country he did not know, but if it could be shown that the consumption of home meat was very largely in excess of the importations of meat from abroad, it made their present case all the stronger. He thought that a great deal might be done by taking care that no delay occurred in putting the regulations into force. In Germany a *cordon* was drawn round infected areas in case of outbreaks of disease.

Mr. FOSTER asked whether the local authorities possessed the power to put the restrictions in force without applying to the Privy Council. Colonel Kingscote very properly said that there was a certain amount of delay in getting the regulations put into force, but in Northumberland they were under the impression that an application to the Privy Council was necessary.

Mr. JOSEPH MARTIN believed that the local authorities had the power to declare an infected place, but not an infected area.

Mr. FOSTER said that while waiting for the authority of the Privy Council time was given for the disease to spread.

Mr. JACOB WILSON reminded the Council that the question before them was not the regulations as to carrying out the present restrictions. The Contagious Diseases (Animals) Act had been properly carried out, but he feared that whatever powers the Privy Council had they did not possess them in the form which would ever warrant persons to embark capital in the establishment of a dead-meat trade; and he thought they should ask the Prime Minister to amend by legislation the present Act. The Privy Council had the power to schedule any country, and to take off the restrictions when they thought proper; therefore no body of men would embark in a large dead-meat trade. Mr. Mundella had thought proper to assert that by prohibiting the importation of animals from countries in which disease exists the price of meat would be raised three pence a pound; but nothing had been advanced in support of that assertion. Sir Matthew ought to be thanked very much for bringing the matter forward, for it was the burning question of the moment, and it was the duty of the Council to take the lead in the matter. Other societies besides the Chamber of Agriculture, he hoped would press the matter upon the Government.

Professor BROWN said there were one or two points which had been touched upon on which he should like to speak. First, although, as Mr. Wilson said, the discussion had no relation to the carrying into effect of the regulations now in force, he might usefully state what the regulations were. When an inspector discovered disease on any premises it was his duty at once to make a declaration and serve a copy of that declaration on the owner of those premises, and he might, if he liked, serve a copy of it on the owner of adjoining premises. The mere serving of that declaration consti-

tuted that place an infected place. The local authorities were then called upon to meet and to determine whether the inspector's declaration was correct or not, they having the power to alter or to determine finally. They could not, unfortunately, declare an infected area : that could only be done by the Privy Council. His Grace, the Duke of Richmond, would probably recollect that it was attempted to give this further power, but it was resisted so strongly in Committee that it was abandoned. Touching upon the question before the Council, he should like to remark that the two points which had been brought forward in close connection were totally distinct. The restrictions at present imposed in this country for the purpose of preventing the spread of Foot-and-mouth Disease had nothing whatever to do with the importation of disease. The fact was that the disease now existed in the country, and there was no reason to infer that the recent accession of the disease was in consequence of foreign importations. The disease in the latter part of 1880 was undoubtedly introduced into the country by a cargo of foreign cattle. At that time, in the beginning of September, the Privy Council believed the country to be really free from the disease ; but from the introduction of French animals the disease spread throughout the country, and at the end of the year the application of restrictions to fairs and markets became necessary. In the summer of last year the disease was so far reduced that there were some hopes of its extinction ; but unfortunately it lingered in the Midland counties, and from thence spread to Norwich. From Norwich Hill the disease spread in every direction. The Norfolk authorities complained that the Privy Council put them under restrictions when they were the victims, but the Privy Council knew perfectly well that when disease appears at Norwich Hill it means the extension of the disease throughout the country. The restrictions were certainly having a very beneficial effect throughout the country : the outbreaks reported on Monday fortnight were 101 ; a week later, 70 ; and last Monday they had declined to 50. These facts went to show that something is gained by restriction, and when he mentioned that during last year the number of outbreaks and attacks were between 4,000 and 5,000, and that in 1871 over 4,000 outbreaks and over 30,000 attacks were frequently reported in one week, he thought they would be disposed to admit that if they could make a whole year's outbreaks and attacks when restrictions were in force represent one week's outbreaks and attacks when the country was without restriction, it was clear that the restrictions were beneficial. In reference to the question of prohibition of the importation of live animals from abroad, it occurred to him at the moment that the proposal which the Council contemplated bringing before the Government was a totally new one. There had been memorials without number, asking that the Government should exercise its powers, and prohibit the importation of animals from all countries. Other suggestions had taken the shape of prohibitions from all countries in which disease existed, which really amounted to the same thing, because there was positively no country absolutely free from some form of disease. Total prohibition the Privy Council had no power to insist upon, but the Act (section 35) distinctly stated that "the Privy Council may from time to time make such general or special orders as they think fit for prohibiting the landing of animals or of any specified kind thereof, or of carcasses, fodder, litter, dung, or other thing, brought from any specified foreign country or any specified part thereof." If the proposition was only that the Privy Council should prohibit from a country in which the particular disease Foot-and-mouth Disease existed, and for so long a time as Foot-and-mouth disease existed in that country, he believed that the powers of the Privy Council would extend so far ; but he wished to call the attention of his Grace to the fact that this was only one of a number of propositions which would come before the

Government, and the other propositions, he believed, would be of a much more sweeping character. Their object would be the entire exclusion of importations from abroad, and the substitution of a dead-meat trade.

Mr. JACOB WILSON : Is it a fact that diseased cattle have been imported and are constantly being imported into Deptford? and that an outbreak of Foot-and-mouth Disease was traced to the use of the intestines of sheep for feeding pigs?

Professor BROWN : That is true: the outbreak occurred in the premises of a butcher in the town of Deptford. We have had so many cargoes of diseased animals from France during the last few months that the Privy Council have prohibited the importation of animals from the port in that country from which they have chiefly come—namely, Boulogne. I wish to reiterate that the present accession of the disease is not due to the importation of animals from abroad, because we have so clearly traced it to Norwich Hill.

Mr. JACOB WILSON : And diseased animals have also been landed from America in Liverpool?

Professor BROWN : Yes.

After a short conversation the resolution was unanimously adopted, and a deputation was accordingly appointed.

Army Veterinary Department.

Gazette, March 2nd.

Veterinary Surgeon C. W. Gillard to be Veterinary Surgeon, First Class, in recognition of his services during the recent campaigns in Afghanistan and South Africa. The under-mentioned Veterinary Surgeons to be Veterinary Surgeons First Class, in recognition of their services during the recent campaign in Egypt :—H. Thomson, I. Matthews, G. J. R. Rayment.

Gazette, March 6th.

Veterinary Surgeon J. W. Evans to be Veterinary Surgeon, First Class. The above promotions are to date from February 15th.

The British troops which were in Egypt during the recent operations, have been awarded a gratuity to compensate for the losses they incurred, this being issued according to the rank or relative rank of the recipient. In this respect the veterinary officers have been fully recognised, the gratuity to them being as follows :—Principal Veterinary Surgeon, £34; Inspecting Veterinary Surgeon, £32; First Class Veterinary Surgeon, £24; Veterinary Surgeon, £15.

Parliamentary Intelligence.

House of Commons, March 5th.

GLANDERS IN INDIAN CAVALRY REGIMENTS.

DR. CAMERON asked the Under-Secretary of State for India whether a regiment of Bengal Cavalry, infected with Glanders, and without being accompanied by a veterinary surgeon, was sent to Egypt; whether many horses were destroyed while in Egypt, and a troop had to be placed *hors de combat* at Suez, the horses of the other regiments and corps being placed in

great peril of infection ; if, on the return voyage to India and subsequently, many more of these Bengal Cavalry horses had been destroyed for Glanders ; and if an officer of an infantry regiment died at Lucknow of Glanders, as well as two natives, the persons having been on board ship with these horses returning from Egypt, and there becoming infected ; and whether it was also the fact that with more than 7,000 animals despatched with the expeditionary force from India to Egypt, there were only two veterinary officers, while the proportion in the Imperial Army was one veterinary surgeon to 250 or 300 animals.

Mr. J. K. CROSS : An inquiry was made two months ago of the Government of India as to the precise extent to which Glanders prevailed among the Bengal Cavalry during the recent campaign and previously. Their detailed report may be shortly expected. No information has reached the India Office of any officer or other person having died of this disease after their return to India, but inquiry will at once be made on this and other points raised by my hon. friend. British veterinary surgeons are never employed on the establishment of the Bengal Native Cavalry, but instead, each regiment has on its establishment two "Salootrees" (a very competent body of men), and these accompanied the corps to Egypt. The recently organised transport service is also provided with "Salootrees," and the full war establishment was attached to the transport in Egypt. Each battery of artillery had its British veterinary surgeon, and a veterinary surgeon on the staff accompanied Sir Herbert Macpherson as superintendent.

House of Commons, March 13th.

GLANDERS.

In reply to Dr. Cameron, the Marquess of HARTINGTON stated that two horses of the 7th Dragoon Guards, one of the artillery, and six animals belonging to other corps had been destroyed in Egypt. These troops were encamped on ground previously occupied by the Bengal Cavalry, some of whose horses had been destroyed for Glanders before they returned to India. The question had been referred to India.

House of Commons, March 16th.

MULES FOR EGYPT.

Dr. CAMERON asked the Surveyor General of the Ordnance whether it was true that Major Carré was sent along with veterinary surgeon the Hon. M. H. Mostyn to Smyrna to purchase mules for the Egyptian Expedition ; whether Major Carré purchased 700 mules contrary, in the case of a large proportion, to the advice of veterinary surgeon Mostyn ; and whether Mr. Mostyn refused to sign the returns of the animals as fit for service ; whether, on the arrival of the 700 animals at Ismalia, a Board, ordered to report upon them, ordered two-thirds of them to be destroyed or sold as unfit for service ; what was the precise number of the animals thus destroyed and sold ; what sum was paid for them at Smyrna ; what was the approximate cost of their transport to Ismailia ; and what sum was realised for those of the condemned animals which were sold.

Mr. BRAND said it was true that Major Carré was sent with Mr. Mostyn to Smyrna to purchase mules for the Egyptian Expedition. Major Carré's instructions were to take the advice of the veterinary surgeon, and it was unfortunate that on several occasions he did not do so. The Board did not order two-thirds of the animals to be destroyed. Eight of them were destroyed. The price paid for mules at Smyrna was £26 10s., which included the freight to Ismailia.

House of Commons, March 19th.

CATTLE PLAGUE IN EGYPT.

Dr. CAMERON asked the Under Secretary of State for India whether it were true that two outbreaks of Cattle Plague occurred among the oxen sent from India for the use of the troops in Egypt; whether in one of those outbreaks the affected animals, instead of being destroyed and buried, were simply driven forth to die; and whether the result was that the road to Kassassin having been thus infected, cattle for the use of the troops were subsequently obliged to be sent up by train?

Mr. J. K. CROSS: As the Indian contingent was placed under the control of the Commander-in-Chief immediately on its arrival in Egypt, the reports of the Veterinary Department have been made to the War Office, and not to the India Office.

Obituary.

DEATH has been more than usually busy among the members of the profession of late, but our obituary for this month is the heaviest recorded for some time.

First, we regret to have to announce the demise of Mr. William Field, F.R.C.V.S., at Bournemouth, in the 78th year of his age. The name of Field has been long and honorably known for three generations as that of gentlemen who have practised with the greatest success in London, and who were always considered the leading Veterinary Surgeons in England. The deceased gentleman held a most distinguished position for more than half a century, was himself the son of an excellent practitioner, and trained two of his sons to the profession, both of whom have been dead for some time so that the family is extinct, so far as the profession is concerned. Mr. Field took the greatest interest in the progress of Veterinary Medicine, and was a staunch supporter of the Royal College of Veterinary Surgeons. Graduating in 1829, he was largely instrumental, we believe, in obtaining the Charter of Incorporation of 1844, and did his utmost to preserve the unity and promote the prosperity of the profession. He was Treasurer to the Royal College in 1846, Examiner from 1844 to 1863, and Member of Council from 1844 to 1864. As evidence of his regard for it, it will be remembered, that when he retired from practice a few years ago, after the sudden and greatly lamented death of his son William, he presented his professional library and museum to the Royal College; and now we learn that, with unexampled generosity, so far as our Corporation is concerned, he has bequeathed one thousand pounds towards the Building Fund, on condition that another thousand pounds be raised by the profession within a year. This is the first legacy our hitherto unfortunate college has received, and were it not that the high character for integrity, honour, business, and skill, would for long years to come cause Mr. Field's name to be remembered, this generous deed would serve to perpetuate it so long as the Royal College of Veterinary Surgeons exists. In William Field, the profession had a warm friend and a strong representative in every way. It showed its esteem for him in electing him its president, and he was also selected as one of the Foundation Fellows when the Fellowship degree was instituted. With the public, Mr. Field was considered a man of unimpeachable honour and integrity, and enjoyed the implicit confidence of all with whom he came into contact; while his excellent business manner made him a valuable and a welcome ally in those public offices in which he interested himself. Since his death, this has been testified to by the public press, and the following notice from *The City Press* of March 14th, gives an example of the estimation in which he was held by one of the city companies:—"At a special Court of the Farriers'

Company, held on Thursday, the clerk announced the death of Mr. William Field, the oldest member of the Court, who died at Bournemouth. He was buried at Kingsbury, where he resided for many years, and was very much respected. A deputation from the Court attended. Mr. Field was admitted to the freedom of the Company on July 1st, 1847, and was chosen a member of the Court of Assistants on June 25th, 1849, subsequently serving the office of Master on three successive occasions, viz., in the years 1852-3, 1868-9, and 1875-6. A resolution expressing the deep sympathy of the Court with the family of the deceased was passed amid universal expression of regret, Mr. Field being held in high esteem by every member." We have no doubt that in the new home which the Royal College must soon possess, an enduring memorial of our deceased and much regretted friend will be raised, so that his memory may be transmitted to future generations, who, we hope, may follow his example.

The second death to be registered is that of Dan Gresswell, F.R.C.V.S., of Louth, Lincolnshire, which took place on March 13th, in the sixty-fourth year of his age. The following extracts from a sympathetic obituary notice, which appeared in *The Louth and North Lincolnshire Advertiser* for March 17th, will give an idea of Mr. Gresswell's career, he being at the time of his death an alderman of Louth :—

"Mr. Alderman Gresswell was born May 13th, 1819, at Kelsey Hall, in Lincolnshire. After the completion of his preliminary education, it became necessary for him to make choice of a profession; and as his parents died when he was but young, he had not the benefit of that parental advice and sound judgment which he has so judiciously exercised in the case of his own children. His selection of a profession was finally determined by his love for animals, which was a pronounced trait of his character. Subsequently to a three years' pupilage in veterinary medicine, he matriculated at the Royal Veterinary College in London, where his whole course was marked by indefatigable industry and the greatest success. Here he earned the good opinion of all his tutors and examiners. Among the latter may be mentioned the well-known names of Sir Astley Cooper, Bart., Charles Spooner, Edward Stanley, and Richard Bright. He also studied at St. Bartholomew's Hospital for some time, under the especial tutelage of the eminent surgeons, Stanley and Lawrence. With a view of gaining a clearer insight into pathology, he studied it in its true, its widest, sense—the science of disease; and to this must be attributed his marked success in his profession. He took the Diploma of the Royal College of Veterinary Surgeons on June 18th, 1840. . . . He now proceeded to devote his attention to his future prospects in life, and decided, after a brief consideration of a proffered commission as veterinary surgeon in the Indian Army, to settle in Louth. Here he rapidly secured a prominent position, and became known not only in Lincolnshire, but throughout England as a consulting veterinary surgeon. He married December 18th, 1845. On February 20th, 1877, he was elected to the Fellowship of the Royal College of Veterinary Surgeons. . . . He was at an early date impressed with the truth of the germ theory as applied to infectious and contagious diseases, and many of his papers, written long prior to Koch's discoveries, show that he confidently anticipated the discovery of a germ in Tubercle. . . . Mr. Gresswell first entered upon public life in 1862, being elected to the Town Council on the 1st November that year. Since that time his connection has been a continuous one. He was elected an Alderman in April, 1871, and on the 9th November in that year was raised to the highest position it was in his fellow-burgesses' power to confer, viz., the chief magistracy of the borough. The year of his mayoralty was not specially characterised, and yet it is not too much to say that he filled the chair with credit, and surprised even those who knew him best by his

assiduity and general ability. The deceased had one or two crotchets, which were quietly passed over by those who knew his sterling honesty, and felt how small his failings were in comparison with the services he rendered. Mr. Gresswell was always popular amongst the poorer classes of his neighbours. Few knew how quietly and yet how readily many a charitable act was performed by him. In large matters the deceased could not be called liberal, but in the every-day walk of life he was exceedingly so, not only in the town, but also in many a country village in the surrounding district. The deceased gentleman had been out of health for some months past, and his end was not unexpected by his medical attendant. . . . He has left a widow and numerous family to mourn his loss, and, attached as he was to his home, that loss must be severely felt amongst the members of the same."

Mr. Gresswell was one of the Foundation Fellows of the Royal College of Veterinary Surgeons, and was appointed a member of the Examining Board for England and Scotland in January last, but was unable to attend the examinations that month, his place being taken by his son, C. Gresswell, of Nottingham. In the profession, Mr. Gresswell occupied a high position, and his contributions to its literature were many, varied, and valuable. By his numerous pupils and those colleagues who had the good fortune to know him, he was much esteemed and respected, and he leaves behind him a good name, as well as worthy representatives in his sons who have entered the veterinary and the medical profession.

John Tatam, M.R.C.V.S., died at Leeds on March 8th, aged fifty-one years. He graduated in 1855, joined the army in that year, and only a short time ago held the position of Inspecting Veterinary Surgeon in the Army Veterinary Department, but was retired in consequence of disease contracted in India, and commenced the practice of his profession in Leeds. Quiet and unassuming, Mr. Tatam performed his military duties with care, skill, and diligence, and earned the goodwill of the officers under whom he served. By his colleagues in the army he was much liked, and his early death will cause some emotion among those who best knew him. He has left a widow and a large family.

Mr. Timothy Coleman, M.R.C.V.S., of Blofield, Norfolk, died on March 11th, aged seventy-five years, having graduated in 1237. He had been in extensive and successful practice in the county of Norfolk for the long period of fifty years, during which he enjoyed the universal confidence and esteem of all with whom he had dealings. He was a just and upright man, and generous almost to a fault. By his death the rich in his locality have lost a wise counsellor and the poor a never-failing friend. By his death a widow and numerous family are left to lament their loss.

On February 2nd, William Furnivall, M.R.C.V.S., died in his fifty-second year. He was third son of the late G. F. Furnivall, Surgeon of Egham, and graduated in 1855. For some time he had been ill and unable to attend to his practice, which have caused his wife and family to be left in very indifferent circumstances.

A young member of the profession has died in the person of Robert Hall, M.R.C.V.S., of Stockton-on-Tees. He graduated in 1864, and was only thirty-nine years of age at his death.

Of our foreign colleagues, we have to report the decease of Professor Lundberg, Director of the Veterinary School at Stockholm.

Notes and News.

CATTLE PLAGUE IN EGYPT.—From Cairo we learn that Cattle Plague is reported to be assuming alarming proportions in Charkieh and Galionbieh provinces. This scourge first appeared in the country in 1843, when it was stamped out by the energetic measures taken by Mehemet Ali. It next showed itself in 1863, and it is believed to have cost the country seven millions since then. It has always existed to some extent, and successive governments have treated it with equal indifference, referring it, as is customary with such responsibilities of office, to commissions. Should it now resume the epizootic form, it would be difficult to exaggerate the consequences to Egypt. Strong pressure should be put on the Ministry to compel them to grapple intelligently with the evil. That such pressure should be necessary may seem extraordinary when the fact is mentioned that the Ministers themselves are large landowners, and must be the first to suffer. But it is none the less true that without such pressure no measure of any importance is likely to be carried out.

A BLIND CAT.—An interesting account of a cat which became quite blind, rather suddenly, from cataract, when about four years old, is given by Mr. Hovey in the *Scientific American*. At first the cat would sit and mew most piteously; and when he tried to move about he met with all conceivable mishaps—ran against walls, fell down stairs, stumbled over sticks, etc. If placed on the top rail of a fence he would traverse its whole length seeking vainly for a safe place to jump off. On being called he would run about in a bewildered way. Ere long, however, Dido (so called, irrespective of gender) showed a power of adaptation to altered conditions. He became able to run down stairs at full speed, turning into the hall after the last step. In this process he went to one side on the top step till he felt the banisters touch his whiskers, and by these he was guided. One by one he made each familiar path a study, noted the location of each door, etc., and with such success that it often seemed as if sight had been restored; but if an unexpected obstacle was placed in his way he showed, by running against it, that he was still quite blind. Dido seems as eager for war as he formerly was, and he even goes abroad in quest of adventures. His value as a mouser does not seem to be in the least diminished. Put into a closet where rats were suspected, he was found in the morning mounting guard over a large rat he had killed. Dido's sense of smell is by no means acute, yet he uniformly chooses the shortest road home without reference to the path he may have taken in leaving the house. Once when the ground was thickly covered with snow, Mr. Hovey took Dido out a considerable distance, and after making a number of turns to bewilder him, tossed him on a drift and awaited results. The animal turned his head in various directions and mewed piteously; but finding he was left to his own resources, he stood motionless for about a minute, and then, to the author's surprise, made his way directly through the untrodden snow to the house door.

HABITS OF BEES.—Mr. Robertson contributes a paper to the *Scientific American*, with the view of removing the common charge preferred against bees, that they destroy grapes and other fruit. To prove that the charge is, at least to some extent, unfounded, he made the following experiment. He placed a quantity of grapes near a hive, and observed that for several days the bees did not touch them; but when a number of the grapes were pricked or bruised, then the bees immediately commenced to devour these, though

they did not attack the sound ones. From this and other observations, Mr. Robertson concludes that bees only meddle with fruit already damaged by other insects and by birds, and that, in consuming damaged or diseased fruit and converting it into honey, they are rendering a real service.

H. Vogel, of Munich, makes some remarks in *Humboldt* on the identity of the effects of the nettle sting and that of the bee and wasp. This identity he shows to exist, and that it is due to the presence of formic acid in the thorn of the plant and sting of the insects. With bees this formic acid serves not only as an offensive agent with which to annoy or destroy their enemies, but also as a preservative of their honey from fermentation. So that, according to Holz, there is some advantage in having an irritable or pugnacious hive, as every time it is disturbed or excited, each bee sheds a drop of formic acid in its honey, which is thereby rendered more savoury and less disposed to decomposition.

VETERINARY HONOURS.—Our esteemed colleague, *outré mer*, Dr. Tous-saint, Professor of Physiology at the Veterinary School of Toulouse, and whose scientific labours are so well known, has been nominated a Chevalier of the Legion of Honour. The same Gazette which contains this decree also confers upon M. Duplessis, Principal Veterinary Surgeon of the 1st class in the army, the grade of Officer of the Legion of Honour.

It gives us great pleasure to announce that M. Mégnin, Veterinary Surgeon in the French Army, has obtained the prize of fifty pounds offered by Lord Walsingham for a memoir on the destructive parasite, the *Syngamus trachealis* of the pheasant. M. Mégnin has done well to win this English prize. He has also been fortunate in obtaining a recompense of 1,500 francs (£60) from the Académie des Sciences for his work, "Des Parasites."

DEATH OF A FAMOUS RACE-HORSE FROM GLANDERS.—A telegram from Vienna, on March 6th, states that the famous race-horse Kincsem, who was never beaten in any race, was shot the previous day, with its foal, having been taken ill of Glanders. It won fifty-four races, but was lately withdrawn from the turf, because it could not carry all the extra weight put upon it. Ten thousand pounds were several times offered for Kincsem, whose merits were discovered when it was too late to enter it for the Derby. Kincsem was considered superior to Kisber.

THE BELGIAN VETERINARY SCHOOL.—By Royal decree of January 24th M. Thiernesse, director and professor, and M. Gerard, professor, at the Brussels Veterinary School, were retired. A decree of February 10th nominates Dr. Wehenkel, ordinary professor at the school, to be director.

THE GERMAN REICHSTAG.—M. Antoine, veterinary surgeon at Metz, has been elected to represent that city, as deputy, in the German Parliament. He bears a very high character in Metz, and the many important services he has rendered his co-citizens have been well recognised in this mark of their confidence in him.

A CURIOUS DISCOVERY.—A short time ago, in the neighbourhood of Namur, a farmer had a cow which was losing condition and likely soon to die, so he had the animal killed. In cutting up the carcass, there was found impacted in the œsophagus a large and fine gold medal of the sixteenth century. It is supposed that the cow in grazing had picked it up on the pasture, and attempted to swallow it, when it became fixed in the situation in which it was discovered. The piece is a quadruple pistolet of Franche

Comté, struck at Besancon in 1578. On the obverse is the effigy of Charles Quint, superbly engraved, and on the reverse the double eagle with the pillars of Hercules on its breast. It is rather strange that no other example of this coin is known, and it is probable that it formed part of treasure buried during troublous times, and that excavations made where the cow usually grazed had turned it up to the surface, where the beast fortunately (unfortunately for it) secured it. The medal is now in the Numismatic Cabinet of the Bibliothèque Royale of Brussels.

VETERINARY PRACTITIONERS.—The following incident happened in the court-room of Binghamton, United States, and will interest all students of comparative anatomy :—

The case in point was this :—Mr. A. sold a colt, as a gelding, to Mr. B., which colt had had but one testicle removed, the other remaining within the cavity of the abdomen. The veterinary surgeon who had castrated the animal was sworn, and on his cross-examination by the attorney, stated the following interesting features in the anatomy of the horse :—

Attorney.—What are varicose veins and where are they found?

Witness.—I don't know, but I can tell where the bellicose veins are.

A.—Where are they?

W.—Close to the belly.

A.—Where is the scrotum?

W.—I am not quite certain, but I think that it is the film that covers the teeth during infancy.

A.—Have you ever made any examinations in the abdominal region?

W.—No; all of my examinations have been made in Broome County.

A.—That is sufficient.

RABIES IN IRELAND.—For some time cases of rabies have occurred in various parts of Ireland, and not long ago the pack of harriers at Barrymore, Co. Cork, had to be destroyed, in consequence of the disease appearing among them. On December 20th, a few days previous to this event, two of the harriers were wandering about the country and biting people, among them being a child. At the commencement of February this child showed symptoms of hydrophobia and died in three days. At that time more than 1,000 persons had been fined in Cork local police-courts for allowing their dogs to run at large without being under proper control.

LIVE STOCK STATISTICS.—It appears from statistics which have recently been compiled that the United States possesses, in round numbers, 38,000,000 cattle, India 30,000,000, and Russia 29,000,000. Russia has 20,000,000 horses, the United States 10,500,000, and Austria 3,500,000. Australia possesses 80,000,000 sheep, the Argentine Republic 68,000,000, and Russia 63,000,000. The United States comes fourth in this list with 36,000,000, but in the matter of swine she heads the world, having 48,000,000. The goat is an important animal in many countries—India is credited with no less than 20,000,000, Africa with 15,000,000, and Mexico with 6,000,000. From the above figures it will be seen that the United States comes first in the list of nations with the two most important articles of flesh food, cattle and hogs; while she is second in horses and fourth in sheep. In regard to the latter two animals, however, she is making rapid strides to a higher position.

Correspondence, etc.

THE NATIONAL VETERINARY ASSOCIATION.

DEAR SIR,—Will you kindly permit us to announce, through the medium of your Journal, that the first meeting of the “National Veterinary Association” will be held on Tuesday, 8th of May next (the day after the annual meeting of the R.C.V.S.), in the Lecture-room of the Society of Arts, John Street, Adelphi, Strand, W.C.? It is proposed that the business of the sittings be arranged as follows:—

- (a) To adopt rules for the future guidance of the Association.
- (b) To elect officers and appoint time and place of next meeting.
- (c) To receive the President’s address.
- (d) To debate on the *major subjects*.

1. Prof. Robertson will open the discussion of Prof. Walley’s paper on “The Contagious Diseases (Animals) Act.”

2. Mr. Fleming will open the discussion on Mr. J. H. Cox’s paper on “Tuberculosis” in the lower animals, and its communicability to the human subject.

(e) Minor subjects to be submitted in the form of questions, for the meeting to vote for or against.

Gentlemen who wish to introduce a *minor subject* should forward the same in form of a question to either of the Secretaries before April 10th.

That the necessary provisions may be made, the Secretaries will be glad if those who wish to join the association and attend the May meeting, will kindly send in their names and subscriptions as early as possible.

It is intended to forward a printed copy of each of the major subjects for discussion to the members at least a fortnight before the meeting, so that the papers be taken as read, and the debate thereon opened at once, so as to economise the time of the sittings.—We are, dear sir, yours faithfully,

GEO. A. BANHAM,	} <i>Hon. Secs.</i>
Downing Street, Cambridge ;	
JOHN PENBERTHY,	
Royal Veterinary College, N.W.,	

THE ROYAL AGRICULTURAL SOCIETY’S PRIZES.

DEAR SIR,—Being a competitor this year for the prizes offered by the Royal Agricultural Society, I feel it my duty to make a few remarks respecting the report issued by the examiners at that competition, as it contains an expression of sorrow at the ignorance displayed by the candidates concerning the subject of grasses and their influence in producing disease in cattle. During the whole examination only *one* question was asked that in any way referred to the subject, and that, as I understood it, amounted to this:—“What grasses act as a direct poison to cattle when partaken of by them?” my answer being: “I know of none that do so, unless they (the grasses) are diseased.” If I have failed to comprehend the meaning the question was intended to convey, I shall be happy to receive correction. However, it appears some grasses growing abroad do possess this property, but the word “foreign” was omitted, both in the examination and report; consequently, readers are misled, naturally supposing that it refers to those of British growth; few thinking, even candidates for these prizes, that they were ex-

pected to be acquainted with Indian or African botany; and in one or both countries I believe such deleterious grasses are found.

This report being published also in the leading agricultural papers, apparently casts a somewhat unfavourable reflection upon the profession, because it can hardly be presumed that competitors in this examination have less knowledge of the subject than the majority of their professional brethren, and I regret stockowners should be led to infer that in this country grasses produce illness or death of their stock, whilst veterinary surgeons who attend them are ignorant of the cause. Apologising for thus trespassing on your space,—I am, yours sincerely,

ALFRED H. ARCHER.

March 15th.

GRUNTING IN HORSES.

SIR,—In the report of the discussion on unsoundness which took place at the last meeting of the Midland Association, I observe a statement made by the President, to the effect that “Professor Walley was of opinion that Grunting was not unsoundness.” I am afraid Mr. Russell did not accurately gather the sense of my remarks on this subject; the statement I made being that a Grunter was not necessarily a Roarer, or *vice versa*, and in one sense not unsoundness, but that it was always a suspicious sign, and in my experience a Grunter is only a degree removed from a Roarer; and I illustrated the former part of the assertion by two cases:—

(1) A thorough-bred entire horse “Tester,” the property of Mr. Kettle, which when I was a pupil with that gentleman I occasionally rode. This horse would grunt loudly if suddenly struck, or if the heels were dug sharply into his sides; but I could never get a sound out of him in cantering or galloping.

(2) A brown bony horse, valued at £100, which I had examined a few months prior to the date of the Midland meeting. Grunted loudly when ribbed; but on subjecting him to two very severe tests, I could not detect the slightest abnormality in the respiratory sounds.

In order to prevent any misconception on this point, I adhibit an excerpt from my lectures on the subject of Grunting:—

“A Grunter is not necessarily a Roarer, and many horses—as also many men for that matter—will emit a very pronounced involuntary grunt when ribbed, and the bigger the horse, the more likely he is to do so; equally will many horses grunt when struck with the spur or heel in riding, or at the drop in leaping. Frequently it is only an expression of fear. Grunting, however, is always suspicious, a Grunter being very frequently only a degree removed from a Roarer, and in my experience time only is required to convert the one into the other. Grunting without Roaring is not indicative of laryngeal, but of cardiac or pulmonic defects, or of a Pneumogastric Neurosis. If a horse grunts to the whip, cough him, put him to severe exertion, and carefully examine his pulse and heart: if the cough is normal in character, if no abnormal respiratory sound is emitted, if the animal shows no distress, and the pulse-beats and heart-sounds are normal, you may, while accepting no responsibility yourself, advise purchase with a special warranty for a few months, or at a reduced figure.”

I am yours faithfully,

THOMAS WALLEY.

VETERINARY POLITICS.

SIR,—As the pages of your Journal have been so much occupied of late, I have refrained from adding to its contents ; but owing to remarks made by several of your correspondents, I feel constrained to ask you to afford space for the following.

In the first place, I may observe that I call in question no man's right to pen what he pleases in any matter relating to our profession, nor the right of any journalist to give publicity to the same ; but I must candidly confess that I feel to some extent astonished that any person loving his profession and caring one jot for its advancement could be found ready to indite the scurrilous and contemptible matter which has recently fallen from the pen of at least one of your correspondents ; and I further confess to a feeling of regret that space should be found in the pages of a scientific journal for such an effusion as the one which appeared in your issue for February by an anonymous writer. However much a man may differ from another in his views, he is not entitled to have recourse to abuse and vilification of his opponent. Abuse is not argument, and no amount of it will ever clear up a disputed question.

I should not have noticed in the most remote degree the attack made, in your February number, by "Asmodeus" upon Professor McFadyean had not Mr. J. Fraser seen fit, in his letter of the 12th ult., to allude to that gentleman and myself in the manner he has done. I have not, to my knowledge, the slightest acquaintance with Mr. Fraser, consequently I do not pretend to judge of his motive in speaking of my colleague in such a contemptuous manner. Mr. Fraser may not be aware that "lads" have often proved themselves superior to men ; and if he is desirous of emulating Professor McFadyean's scientific attainments, by all means let him do so ; but I will promise him one thing, viz., that he will have to employ his time in a different manner than in the coining of contemptuous epithets. Professor McFadyean's scientific attainments are too well known by those associated with him to require any notice of them here, except perhaps that I may remind Mr. Fraser of one or two matters connected with his professional career.

Professor McFadyean was one of those students so often termed "theorists ;" but notwithstanding this, he succeeded in carrying off all the best class prizes in his year, and to run a "practical" student very close indeed for the first "Fitzwygram prize," gaining the second place in the competition, or rather losing the first, by, I think, about six marks.

So much did he distinguish himself in his College career that I had no hesitation (being well able to judge of his capabilities as an anatomist by virtue of having been his teacher in that subject) in recommending him to the trustees of the College as teacher in anatomy, and they had no hesitation in appointing him to the position. How far I was justified in so recommending him I leave to those who have had the benefit of his prelections to say.

As I have said before, Professor McFadyean is not the first "lad" who has shown himself, as a teacher, infinitely superior to those much older than himself ; and if Mr. Fraser wants other proofs of his capabilities, I may refer him to the successful termination of the task he set himself—in spite of a severe illness, and in spite of his arduous duties here—of obtaining the double qualification of M.B. and C.M. in the Edinburgh University. How highly he was appreciated by his teachers there, Mr. Fraser may perhaps gather from the fact that he was recommended for a position abroad, and offered the position at a salary exceeding the four figures, but which he refused—a refusal, I suspect, that few of those who have vilified him will have the opportunity of giving.

Mr. Fraser says "he does not so much blame the 'lad' as Professor Walley for allowing such trash to find utterance in his presence." Let me, once for all, tell Mr. Fraser, and all who have made similar remarks, that I don't pretend to place myself either in the position of censor of, or of sponsor to, my colleagues; they are perfectly at liberty to hold what views they please; and Mr. Fraser must entertain very narrow ideas of the relationship existing between us if he for a moment supposes that I shall, at his bidding, put a gag in the mouth of any one of those with whom I am associated. It would be a bad day for this institution if its teachers were reduced to one dead level. Were I a tyrant, or had I the desire of exercising a tyrannical power, I might think otherwise. But enough of this, sir. Mr. Fraser is quite welcome to think as he chooses, and I hope he will accord the same liberty to myself and those whom he despises.

The present relations of the schools to the profession and its Council are such as to demand the serious consideration of all those who are desirous of seeing our profession occupying the position it deserves in the estimation of our fellow-men, and I may be pardoned if I venture to trespass to an undue extent upon your valuable space.

I may premise that the profession does not claim a member who is more anxious than myself that it should advance in the highest and truest sense of the word; and if I differ in my views as to the way in which this advancement is to be gained from those entertained by its other friends, I can at least claim that one common bond of sympathy and union with them, viz., that the day may not be far distant when it will occupy the highest position in the eyes of all the more intelligent members of the community.

To the question, "Is fresh legislation required?" I unhesitatingly give a negative answer. Rather, in my opinion, should the Council devote itself to the revision and consolidation of its bye-laws and regulations. For the past two or three years the schools have been kept in a perpetual state of uncertainty and unrest, not knowing what a day might bring forth, consequently being often unable to give definite information as to the curriculum and examinations, and frequently having to delay for several weeks or months the preparation of the annual prospectus, for fear of some new bye-law being created, or some existing regulation being abolished or changed. As a proof of my assertion that the Council requires rest, I may be allowed to refer to past legislation.

1st. A bye-law was passed to the effect that a student should give evidence, before obtaining the diploma, of having seen at least twelve months' practice. With other members of the Council—a small minority—I insisted that such a step was illegal, but it was taken; subsequently, in order to avoid the possibility of endless litigation and loss, I challenged the legality of the procedure, and even some of those members of Council who had previously assisted in creating the bye-law turned round and assisted me in rescinding it; in fact, if my memory serves me right, the minority vote was a unit, and, on subsequently obtaining the opinion of the highest legal authority of the land, it was found that the Council had no power to create such a bye-law.

2nd. About two years ago, a motion was brought forward similar to the one I made at the last Council-meeting in reference to the oral preceding the practical examination. That motion was carried by an almost unanimous vote, and, in fact, with an enthusiasm I have never seen equalled in the proceedings of the Council; but its adoption and confirmation were unfortunately delayed until the educational scheme should be settled, and when the report of the committee on that scheme was laid before the Council, I discovered therein, to my astonishment, a proposition to the effect that "the practical shall precede the oral," etc. On directing the attention of the

members of the Council to this erratic proceeding, I was still further astonished to find that, with one exception, they had forgotten the motion had been passed, and, in fact, believed that its further consideration had been postponed, but on referring to the minutes their mistake was made apparent. Notwithstanding this, however, the motion as it stood in the educational scheme was carried. The Council stultified itself, many of those who had previously supported the proposition in the heartiest manner giving an adverse vote. Is this the kind of legislative action to tempt a man to travel several hundreds of miles to take part in?

3rd. The educational scheme has been under consideration for over two years. I have in my possession no less than five different reports—all differing in some respects from each other—referring thereto; and, finally, with its adoption another hardship to the students has been added to those already in existence, viz., that two examinations only are to be held annually.

In reference to the provisions of the proposed new supplemental charter, there are only two to which I shall refer—firstly, the pupilage clause; secondly, the fees.

That every young man who pretends to practise as a veterinary surgeon should see practical work before doing so, is an absolute necessity; but the question arises, How and when is it best to see this practical work? I have always held that a long apprenticeship is a great mistake, and that it is better for a pupil, if he sees practice at all prior to entering a college, to do so only for a limited period; and after he has gleaned something of theory, and has settled into studious habits, to see as much practice as he possibly can, or as his means will allow. Holding this opinion, it may be asked why I oppose the application of powers to render pupilage compulsory. The answer is, firstly, that we have no guarantee how far the period of pupilage may be ultimately extended by the Council; and secondly, that an extended period of pupilage would be a great hardship to many young men with limited means, and would keep many good men out of the profession, especially in a country like Scotland, where so many of those who attain to eminence in the professions and arts do so by downright hard work, and frequently are very poor, keep often, in fact, working in the intervals of study for the wherewithal to support themselves at college. Thirdly, there are many young men, of brilliant parts, who, by the aid of a little practical work during the vacations, added to that which they get at college, are enabled to master the details of professional manipulation in a manner that many of those who have served a long apprenticeship can never attain to. To such as these an enforced prolonged pupilage would not only be a great hardship, but an absolute waste of time.

Fourthly, a prolonged compulsory pupilage means a long purse and a heavy addition to the expenses necessary for the obtainment of the legal qualification; and when the prospect of gain, by the exercise of his professional calling, is considered, how often does the practitioner find that the game is not worth the candle, very frequently associating with his practice some other calling, or forsaking it altogether for something more lucrative.

The examination fees are already high enough, seeing that if a student is unsuccessful three guineas are demanded for each additional examination, and very frequently these fees amount in the aggregate to a sum not far short of that which is paid as college fees. If it is found that the fees do not cover expenses—and I am not aware that this has been shown to be the case—some means should be adopted to reduce the latter.

At present a large sum is paid for travelling expenses—five, six, or seven pounds in some instances—half of which could be saved by appointing residents in Scotland to examine there, at least on some subjects; moreover,

examiners are paid at the rate of £1 1s. per hour, and under the present system they are actually paid large sums for examining those whom they know are already rejected—is this fair to the student or to the R.C.V.S.?

The position of students under the present system and with compulsory pupillage is as follows:—

(a) A large premium has to be paid for pupillage—Mr. Greaves says £100 for three years, but this sum is far exceeded in many instances—and a considerable outlay in most cases is also incurred during the time for board, clothing, etc.

(b) A student goes to college, where all his college and examination fees have to be paid, books, etc., to be purchased, and board, lodgings, and clothing provided for a period of at least two and a half years; and if he is unfortunate enough—as some are—to be rejected several times, this period is prolonged to four or five years, or even longer.

(c) If a student is rejected in one subject he is, practically, *rejected in all*, i.e., the subjects in which he has passed are not allowed him in future examinations: so that he may be rejected in one subject in one examination; he works hard to make up that deficiency, and in doing so forgets others, in which, at the next examination, he fails; and so on, until he is knocked about like a shuttlecock. And all the time this agony is being prolonged he is, very often, getting more and more discouraged and downhearted, or becomes utterly reckless of himself and all belonging to him. I ask, why should a man who has passed in one or several subjects be compelled to undergo the ordeal—so far as they are concerned—again? Why is he not allowed to devote all his energies to the attainment of a knowledge of those subjects in which he has shown himself deficient? And further, why, in the final, when he fails in passing the practical, should he not be allowed to go where he is likely to gain practical knowledge, instead of being sent back to the college where he has already had his share of practical work, and where he has to make way for those who come after him? These are questions to which, I think, no man can reasonably give any other answer than by putting another question, viz., Why should these things be? I do not hesitate for one moment to say that some examiners are too exacting. They expect young men to give answers to questions which would often puzzle their elders, and they do not always allow for the effects of nervousness and anxiety; furthermore, the examiners are not always in accord with the teachers, and confine themselves too exclusively to one particular (often a pet) subject, instead of giving a student a chance by testing his knowledge over a wider range of subjects. In the final examination too much stress is placed on the examination of the horse as to soundness—a subject in which there is frequently a wide divergence of opinion, even amongst the seniors of the profession; and, so far as Scotland is concerned, Scottish practice is not only not fairly represented on the board—it is not represented at all.

In reference to the curriculum, I may point out a modification which I think might be made with advantage in the attendance on the second summer session. If a student has attended all the lectures usually given in the summer, I see no reason why he should not be allowed, after passing the B examination, to go away and see practice, more especially as at that period he has a chance of seeing parturient operations, castration, etc., instead of being kept at the schools to hear a repetition of lectures.

I agree with Mr. Greaves that it would be far better that some arrangement should be come to between the R.C.V.S. and the schools on general matters requiring revision, than that they should be placed in antagonism to each other—a very probable contingency, unless a spirit of concession and compromise is allowed to prevail, as I sincerely hope it will; and I would ask our friend Mr. Greaves to initiate such a spirit by ceasing to rail against young

practitioners, seeing that mistakes are made in practice by veterans as well as by novices. I strongly suspect they are occasionally made by all, and he who does not acknowledge that he sometimes makes mistakes is either egregiously egotistical and untruthful, or too ignorant to know whether he is doing right or wrong. I may jog Mr. Greaves's memory by reminding him of a gross case of malpractice by an *old* practitioner, which he witnessed, in my company, at the establishment of a nobleman not a hundred miles from Manchester some years ago.

Finally, may I be allowed to ask how it is, or at whose door the blame lies, that the army has of late years become nearly closed to young members of the profession? Numbers of young men join our ranks mainly in the hope of obtaining an army appointment; yet, while complaints are made on all sides, both at home and abroad, that the Army Veterinary Department is under-manned, these young men are kept hanging on for an indefinite period, in the vain hope of getting a chance of attaining to the position to which they aspire! And I would further ask whom we have to thank for the inauguration of the recent system of educating farriers in veterinary medicine and surgery? These men bid fair to take the place of that host of empirics against whose practice the R.C.V.S. has so recently been directing all its legislative energies. It is only a few months ago that, on calling upon a brother practitioner, I saw a man walk into his yard, and, with a very consequential air, ask for a description of the symptoms, etc., of the then prevailing epizootic of Influenza. That man, I was afterwards informed, was an ex-farrier sergeant, whose appointment in the establishment of a well-known nobleman lost my friend an annual income of £60 or more. If army veterinary surgeons are to give lectures on veterinary subjects, can they not be given to army veterinary candidates? and why should not the latter be appointed, even before obtaining the diploma, to some such position as veterinary assistant or dispenser? —I am yours truly, THOMAS WALLEY.

TUBERCULOSIS.

SIR,—Reading in the VETERINARY JOURNAL for this month the proceedings of the quarterly meeting of the Scottish Metropolitan Medical Association, I noticed, under the heading "Interesting Cases," a statement made by Professor Walley, that he thought it was the duty of the profession to memorialize the Privy Council to include in the schedule of the Contagious Diseases, viz., tuberculous diseases of the tongue and lungs in cattle.

I think the professor could only be jesting, or that he thought the Privy Council were too stringent by closing the markets against the sale of stock, because the Foot-and-mouth Disease prevailed in some parts, although it is contagious, but of so simple a nature that not one in a thousand succumbs; and it is so easily treated by a practical man, that the farmers and graziers would sooner have it in their yards than be subject to the annoyance of the markets being closed, which is very injurious to all trades.

During the forty years I have been in practice, I have had many cases both of tuberculated tongue and lungs under my care. One of the lungs I have fresh in my recollection. The bullock was housed all winter with others, and grazed in the summer months with different beasts, all the time losing flesh; but none of the others were ever affected with the complaint. I have found the tubercles vary in size, from a small pea to a large egg, and altogether almost fill the chest. The nature and character of tubercles in the latter stage (as I have mostly found them) are of a yellowish grey colour, opaque and firm, and their consistence being about that of cheese.

Pulmonary tubercles appear from high authority to contain animal matter, muriate of soda, phosphate of lime, and carbonate of lime. According to

my experience, there is scarcely any texture of the body which has not occasionally been the seat of tubercle. For instance, there are wens, which mostly make their appearance on the angle of the jaw, although I have had them on other parts of the animal. I have cured as many as five on one bullock ; but when they get inside the throat, or on the tongue, they do not admit of cure, with the exception of the butcher's knife. I consider the cause of them to be the food or water of the fens, or both, because I have known beasts go from us with small wens, up the high country, and disappear without any treatment whatever. But tuberculous diseases, in my opinion, are by no means contagious.—I remain, sir, yours truly,

Spalding, Feb. 22nd.

ROBT. P. FOSTER.

CORRECTIONS.

IN the pass list of students given at p. 221 of the Journal for March, H. M. Singleton is shown as having passed with Great Credit. It should have been A. Gill.

In Mr. Raymond's paper on "*Echinococcus Veterinorum*," instead of "about a gallon of hydatids, etc., was evacuated," it should have been "about half a gallon."

The demands on our space compel us to hold over the reports of the Liverpool and North of England Veterinary Medical Societies, also a communication from Mr. Leeney, until our next issue.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from E. Semmer, Dorpat, Russia ; R. P. Foster, Spalding ; J. G. Cross, Shrewsbury ; A. Lydtin, Carlsruhe, Germany ; J. W. Wolstenholme, Manchester ; T. H. Simcocks, Drogheda ; R. Rutherford, Edinburgh ; T. Walley, Edinburgh ; W. F. Garside, Cirencester ; M. Hedley, Dublin ; T. Greaves, Manchester ; F. Raymond, A.V.D., India ; J. Roalfe Cox, London ; A. Broad, London ; C. Gresswell, Nottingham ; W. Hall, Exeter ; M. E. Naylor, Wakefield ; C. Furnivall, London ; A. W. Hill, London ; "*Embryo*" ; A. Bain, Liverpool ; J. Pemberthy, London ; G. Morgan, Liverpool ; H. Leeney, Brighton ; "*Verax*."

BOOKS AND PAMPHLETS : *R. Molkenstin*, Ein Beitrage zur Sicherstellung der Diagnose des Occulten Rotzes ; *J. Girardin*, Leçons de Chimie Élémentaire appliquée aux Arts Industrielle ; *M. Wilckens*, Form und Leben der landwirthschaftlichen Hausthiere ; *G. Gsell et P. Renier*, Manuel de Médecine dosimétrique Vétérinaire ; *A. Johnc*, Die Geschichte der Tuberculose ; *P. Toepper*, Die neueren Erfahrungen über die Aetiologie des Milzbrandes ; *W. T. Black*, Medical Notes and Statistics of the British Expedition to Egypt in 1881 ; *W. Tappe*, Der Lungenbrand der Pferde.

JOURNALS, etc.—*American Veterinary Review* ; *Oesterreichische Vierteljahresschrift für Wissenschaftliche Veterinarkunde* ; *Der Thierarzt* ; *La Clinica Veterinaria* ; *Deutsche Zeitschrift für Thiermedizin und Vergleichende Pathologie* ; *Revue Vétérinaire* ; *Archives Vétérinaire* ; *Live Stock Journal* ; *Recueil de Méd. Vétérinaire* ; *British Medical Journal* ; *Chicago Live Stock Journal* ; *Mark Lane Express* ; *Annales de Méd. Vétérinaire* ; *L'Echo Vétérinaire* ; *Journal de Méd. Vétérinaire et de Zootechnie* ; *Lancet* ; *Wochenschrift für Thierheilkunde* ; *Edinburgh Medical Journal* ; *Sanitary Record* ; *Bulletin et Memoires de la Soc. Centrale de Méd. Vétérinaire*.

NEWSPAPERS. — *Manchester City News* ; *Bury Times* ; *Shrewsbury Chronicle* ; *Freeman's Journal* ; *Irish Sportsman* ; *Montgomeryshire Express* ; *Irish Times* ; *Cork Evening Telegraph* ; *Montreal Herald* ; *Louth and North Lincolnshire Advertiser*.

TO CORRESPONDENTS.

No notice can be taken of anonymous communications. Whatever is intended for insertion must be authenticated by the name and address of the writer, not necessarily for publication, but as a guarantee of good faith. We cannot undertake to return rejected communications.

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

MAY, 1883.

THE GERM THEORY OF DISEASE.*

BY JAMES LAMBERT, F.R.C.V.S., INSPECTING VETERINARY SURGEON FOR IRELAND, ARMY VETERINARY DEPARTMENT.

MR. PRESIDENT AND GENTLEMEN,—Our subject this evening is the Germ Theory of Disease, and a more important doctrine, in its bearing on the health and welfare of mankind and the domesticated animals, has never been given to the world. It is disturbing and exercising both the scientific and the practical mind, and revolutionising our ideas of the consideration and treatment of disease. Every day new facts connected with it are brought to light, and every week hundreds of converts are enrolled in its ranks. Its greatest aid is the microscope, which is the true Columbus of medical science, and which is continually bringing new worlds into our ken.

We must not, however, be too sanguine about the Germ Theory of Disease, and we must learn to study it patiently, and without too much enthusiasm, for many and weighty matters have yet to be investigated and confirmed. At present, however, we may reasonably say that we have in this theory already sufficient groundwork to inspire us with boundless hope.

To the veterinary profession it is extremely gratifying to know that Professors Chauveau and Toussaint—two French veterinary

* A paper read before the Irish Central Veterinary Medical Society in the Lecture Theatre of the Royal Dublin Society, on the 5th April, 1883.

surgeons—have taken most prominent and leading parts in its initiation and elucidation. Professor Chauveau is acknowledged to be one of its foremost pioneers, and of him Dr. Charles Cameron, M.P., in his very excellent paper on the “Microbes of Disease,” says: “Monsieur Chauveau, a veterinary surgeon of Lyons, who first demonstrated that infections were not liquid or gaseous, but particulate, and whose many invaluable researches are far too little known in this country.”

M. Toussaint is famous for many discoveries in this field, amongst others of the bacterium or microbe which produces Fowl Cholera, nor must we forget the great services of Professor Bouley, the distinguished Director-General of the French Veterinary Schools. We might also name many other Continental veterinarians, who are noted as original experimentalists in connection with the Germ Theory. We may, however, well quote what Dr. Charles Cameron, in an address to the Social Science Congress, in 1881, said about foreign members of our profession:—“It is their investigations into the diseases of the domesticated animals which have enabled the veterinary surgeons of France, within the last few months, to make such preponderating contributions towards the solution of questions vitally affecting, not merely those animals, but mankind.” Dr. Cameron, in the same address, urged the institution of Chairs of Comparative Medicine and Pathology, and the desirability of carrying this suggestion into effect must be very apparent to all careful students of our medical literature.

Coming now to our British Islands, we have investigators who have made valuable contributions towards throwing light on the Germ Theory, and we may name Dr. Lionel Beale and Drs. Burdon-Sanderson and Klein, and Mr. Cheyne, as the most prominent. Professor Lister’s great discovery of antiseptic surgery—an outcome of the Germ Theory—has been of incalculable benefit to mankind.

In reading about researches connected with the doctrine we are considering, it will not fail to strike you how rarely any British names are mentioned. In some measure this may be, speaking for the moment of the medical profession, that any discoveries it may have made are dwarfed by the greater ones of

the Continental investigators ; nor must we forget under what restrictions and difficulties experiments on animals are here carried on.

Professor John Gamgee and Mr. George Fleming, two veterinary surgeons, have been prominent in spreading information about contagious diseases, and Mr. Fleming is of European reputation as one of the foremost of comparative pathologists. But why do not the veterinarians of the United Kingdom come more to the front in these matters ? The answer is not far to seek. On the Continent the veterinary profession receives great State aid and patronage, and is therefore abreast of the foremost as one of light and leading. In our own country it receives no State aid. Let that be duly given, and I have no doubt that it would soon equal all others in this and kindred matters which we have now under consideration. That it receives no State aid is, we believe, mistaken policy, for such assistance would be quickly repaid a hundred-fold. That the veterinary profession of the United Kingdom has, by its own unaided exertions, done such incalculable services to the country, redounds to its everlasting credit.

The Germ Theory of Disease is so vast a theme, that we can only, in the limited time at our disposal to-night, briefly notice its most interesting features, and glance at some of the most important diseases of our domesticated animals to which it applies. I will endeavour to put what I have to say in plain language, and free from what are, to very many people, unintelligible words.

Dr. Aitken, in his "Outlines of the Science and Practice of Medicine," gives the following excellent definition : "The Germ Theory holds that each specific disease has a specific poison-germ, which lives, grows, and has a being specifically distinct from each and all other germs." By a specific disease we mean one which has its own peculiar characters, which distinguish it from all other diseases.

As an advocate of the Germ Theory, I will at once express my belief that every communicable, or transmissible, or contagious, or infectious, or specific disease depends on living organisms for its production and development. Permit me to say here, that throughout this paper I shall often use the

words "contagion" and "infection" as conveying the same meaning.

It is becoming recognized that all specific and contagious diseases are produced by a minute living organism—a parasite—supposed to be of low vegetable life, and that this parasite cannot be spontaneously generated, for, as Professor Tyndall says, "As surely as a thistle rises from a thistle, as surely as the fig comes from the fig, the grape from the grape, the thorn from the thorn, so surely does typhoid virus increase and multiply into typhoid fever, the scarlatina virus into scarlatina, the small-pox virus into small-pox. What is the conclusion that suggests itself here? It is this—that the thing which we vaguely call a virus, is to all intents and purposes a seed."

Under the head of "Germs," Bacteria of all kinds are included, and under the head of Bacteria are included bacilli, micrococci, vibrios, spirilla, etc. On the Continent these organisms are usually called Microbes, which is a much better term. I will now describe these disease-producing agents. There is first the bacterium, or bacterion, or bacillus, Greek and Latin words signifying "a little rod." The Bacteria, then, are minute, rod-shaped bodies, which, in the diseases they produce, are found in the blood, fluids, and tissues of the body. They multiply themselves with great rapidity by what is called transverse fission; that is, one divides into two or more, and so on, and they also multiply by giving origin to spores, or germs, or seeds—three words here meaning the same thing—which develop into the likeness of the parent-organism.

Bacteria are very small, about the $\frac{1}{2500}$ th of an inch in length, and many are even smaller. They are about the $\frac{1}{25000}$ th of an inch in diameter. If you look at the diagram, and compare them, you will see that a bacterium is very often not as large as a red blood-corpuscle. Now, it is calculated that if placed edge to edge, ten millions of red blood-corpuscles would lie on a square inch of surface; yet, as we have just seen, many of the bacteria are much smaller than the blood-globules. This enables us to readily understand how germs are wafted about in the atmosphere, which may thus be—and doubtless often is—a disease-carrier.

Then there is another disease-producing agent, or bacterium, called the micrococcus, which is an exceedingly minute round organism, and the diplococcus, a kind of double micrococcus. There is the vibrio, a sort of lengthened cell, which often moves about in a lively manner. There is also the spirillum, which is the cause of Relapsing Fever. There are numerous other microbes which it is unnecessary to mention here.

Under the microscope many of these organisms are seen to move about in different ways. All of them under favourable conditions rapidly multiply themselves. You will naturally ask, are they animals or vegetables? The boundary-line between animal and vegetable life is extremely shadowy; however, it is considered that they are of a low vegetable type.

The bacteria are easily killed by heat, and by some chemical solutions, but their spores, or germs, or seeds—whichever you like to call them—are very tenacious of life. Some of the spores may be boiled for two or three hours without being killed, and if dried, they will keep for a long time, for months or even years, and show that they are still alive when they meet with suitable conditions.

It should here be said that bacteria of different kinds are almost everywhere; in our food, and water, and milk, and other fluids, and in the atmosphere. We also know that the putrefaction of animal and vegetable substances is caused by bacteria. Keep these away, and those things will not rot. Professor Huxley says, "All the forms of putrefaction which are undergone by animal and vegetable matters are fermentations set up by bacteria of different kinds; therefore, putrefaction is a concomitant, not of death, but of life." Septicæmia, or blood-poisoning, and Pyæmia also depend on certain microbes being morbidly at work in the body.

I have already expressed the belief that all transmissible and contagious diseases are caused by living organisms, and that each disease has its own particular germ, which only produces its like, just as we see wheat produce wheat or an acorn an oak. And we may reasonably believe that each specific or particular kind of germ requires for its propagation suitable nourishment and favourable conditions, without which it will sooner or later perish.

And it is highly probable that each kind of specific germ has, when it enters the body, a favourite locality, or resting-place, or nest, where it can best multiply itself. We may here remark that disease-germs can enter the blood-vessels, and even penetrate the white blood-corpuscles. It is likewise probable that disease-germs must not only enter the body to produce their effects, but also that the body must afford them suitable conditions to enable them to multiply, and so powerfully attack their host. For this reason, perhaps, strong healthy animals often resist infection or bear it well, while the weak and debilitated fall an easy prey and succumb.

We may ask, how is it that the bacteria attack the body, derange its functions, causing it to be ill, and then, after a time, frequently cease their operations? May we not reasonably think that the body often recovers because the parasites have exhausted the suitable food and conditions for their existence, or, in other words, find the body uninhabitable, and perish? To speak of recurring fevers, like ague and some others, the very probable suggestion has been offered, that successive crops of bacteria come to maturity, each coming to maturity being attended by a return of the illness. If not, how can we explain the periodical recurrence of some fevers; for instance, the tertian and quotidian, and the daily hectic access of Phthisis? Dr. J. E. Pollock, in his recently-delivered lecture on the Modern Theories and treatment of Phthisis, speaking of this recrudescence, says: "Chemical ferments would not act so, but would work through the whole system at once, and either kill the patient or exhaust themselves, by finding no more material to work on."—*Lancet* March, 1883.

But very many observers, whose opinions are entitled to the greatest consideration and respect, will not yet give in their adhesion to the Germ Theory of Disease, and they stoutly maintain that the germs are a disease-product, or consequence, and not the cause. Some hold that what we call disease-germs may occur in the body without previous infection, and as a result of morbid processes; and some maintain that they exist in all living and healthy animals, and that they are not causes of disease, but only become so when abnormally increased. As

we proceed you can form your own opinions ; but I may at once say, that when we find that, if we take infected fluid and filter away the germs, it becomes harmless, it is difficult to look upon them as otherwise than the disease-producing agents. In relation to this, it may be stated that M. Pasteur has lately published a rather remarkable experiment. He suspended a tube vertically in one of the cellars of the Observatoire at Paris. This tube contained an exalted culture of Splenic Fever virus, or bacteria. After a time the bacteria and their spores settled at the bottom of the tube. He first inoculated with the top liquid, and it proved inoffensive ; then he inoculated with the lower liquid, and it killed the animals experimented upon. This is a sufficiently striking experience. He also adds that M. Vulpian, the physiologist, lately informed him that he had made the interesting observation that the filtration of a poisonous solution of strychnine can make the liquid harmless.—*Revue Scientifique*, 20th January, 1883.

Disease-germs being, as we have seen, so exceedingly small, can be readily carried in the atmosphere, and so be deposited in wounds, or they may be breathed into the lungs, as in Scarlet Fever and Measles. Or they may be swallowed in the food or drink, as in Cholera, Typhoid Fever, and Dysentery. A third way of conveying infection is by bites, as of a rabid animal, or punctures, as in snake-bite, or by actual contact of the healthy with the sick, allowing germs to get access through the skin, and, as is also believed, sometimes by a rabid dog licking the hand.

In describing the Germ Theory, it has become customary to select the action of the yeast-plant as an illustration. When the yeast germs, which are very small ovoid vegetable bodies, are added to any saccharine solution which is kept warm, they at once begin to rapidly develop and multiply themselves, and the result is what is called fermentation, and alcohol and carbonic acid are formed. Now mark this, a saccharine solution will not ferment unless yeast gets into it. If you filter yeast so as to catch the germs and then add its fluid without them, the saccharine fluid will not ferment. If you add a little yeast to saccharine fluid, then boil it and exclude air, unless it has previously passed through cotton-wool, it will not ferment, because

boiling has killed the yeast. So, as Professor Huxley says, "These experiments afford evidence, 1st, that there is something in the yeast which provokes fermentation; 2nd, that this something may have its efficiency destroyed by a high temperature; 3rd, that this something consists of particles which may be separated from the fluid which contains them, by a fine filter; 4th, that these particles may be contained in the air, and that they may be strained off from the air by causing it to pass through cotton-wool" ("Practical Biology." Article, Yeast). We thus see that the yeast germs behave very like the disease-producing bacteria we are now considering.

The cultivation of silkworms in France is a great source of wealth. In 1865, a disease was committing great ravages among them. M. Pasteur was requested to investigate it, and discovered that it was caused by microscopic living organisms. We have not now time to describe how after five years of patient observation M. Pasteur showed the silk-growers what caused the disease, viz., microscopic living parasites, which invaded the silkworm's body, but he also pointed out to them the way to stamp out the malady by breeding the worms only from uninfected eggs. The successful result of his investigations was gratefully and duly acknowledged.

(To be continued.)

ACTINOMYKOSIS: A NEW INFECTIOUS DISEASE OF ANIMALS AND MANKIND.

BY GEORGE FLEMING, F.R.C.V.S., A.V.D.

(Continued from p. 243.)

Prognosis.

The prognosis must depend not only upon the locality or anatomical seat of the disease, but also upon the extent to which it has developed itself. When an important organ is involved, and that extensively, or when the disease is but slightly advanced but is beyond reach, then the prognosis must be unfavourable.

When it is accessible, and has not caused serious alteration, and when it can be removed or palliated within a certain time, then it must be pronounced favourable. Sometimes spontaneous recovery takes place, probably owing to the fungus losing its vitality, through diminished nutritive supply from retraction of the connective tissue stroma, and its becoming encapsuled in lime salts.

Treatment.

The treatment of Actinomykosis belongs exclusively to the domain of surgery, and its object must be the extirpation or destruction of the microphyte. This is only possible when it is accessible to the hand, surgical instruments, or destructive agents—as caustics. Tumours situated on the jaws or face can be removed by cutting instruments, but it must be for the veterinary surgeon to determine as to whether operation will be profitable, from a pecuniary point of view. It must be remembered that resection of the jaws, which is generally a desirable and successful operation in man, is not to be recommended in the case of animals, for obvious utilitarian reasons. If it is decided that treatment be resorted to in the case of these and other easily-accessible Actino-mykomatous tumours, they should be removed according to surgical principles, and the wounds dressed with agents which will be likely to destroy any spores of the fungus which may chance to remain ; or the attempt may be made to destroy the fungus by injecting these agents in a fluid state into the centre of the mass. Johnes speaks favourably of the action of sulphate of copper in destroying the fungus.

With regard to Actinomykosis of the tongue, success in treatment must depend upon the condition of the organ, *i.e.*, the extent to which it is invaded by the fungus. When this is near the surface it is easily destroyed by caustics, as Carbolic Acid (1 to 25 of water), Tinct. ferri perchlorid., or Liq. ferri perchlorid. fort., diluted with only two parts of water. The latter agent has been very successfully employed by Mr. James, who states with regard to it, “Only at the commencement of treatment is it necessary to dress every day ; after a week, once in two or three days may be sufficient, but I leave that to the discretion of

the practitioner, who will be guided by the appearance of the tongue and the progress the case is making; also to further dilute the dressing if necessary. . . . I always order some extra nutritive food, and I find after two or three dressings there will be a great improvement in the animal's feeding; the tongue will be hardened, and the abnormal sensitiveness destroyed."* A cure cannot be effected in a very short space of time, and patience is necessary to carry out the treatment effectively. When the organ is extensively involved, and treatment is nevertheless determined upon, it is advisable to make more or less deep incisions in the indurated portions, and apply the caustic agent to these, so as to reach the deeper-seated fungus nodules. Excision of a portion of the tongue may even be advantageously resorted to, if the animal is to be fed on soft food, with the intention of its being consigned to the butcher.

When the Actinomykomata are situated in the mouth or pharynx, they may be removed by the knife, *écraseur*, or even the fingers alone, the gag being employed to protect the hand and render the operation easier. Meyer, a veterinary surgeon at Neuhaus, in Germany, has, in the course of twelve years' practice, operated in more than 300 cases of pharyngeal tumours, or so-called Lymphomata. He only employed his hand, passing it into the pharynx, seizing the growth, and removing it by twisting, tearing, and scraping with the finger nail. I am informed that Mr. Wyer, M.R.C.V.S., of Donington, Lincolnshire (where such tumours are frequent), has also been very successful in this operation. He had the animal thrown down, inserted a mouth dilator between the jaws, which were maintained as wide apart as possible; then, with a short-bladed knife he made a vertical incision through the soft palate, to allow more room for the introduction of his hand into the pharynx, in order to tear away the tumours. The hæmorrhage was never serious, and the only danger was the tumefaction which ensued in a few instances.

In some cases, either before or after operation, tracheotomy may be necessary to ensure success.

* The VETERINARY JOURNAL, Vol. xiv., p. 12.

The Sanitary Importance of Actinomykosis.

The sanitary importance of this disease is so far evident. It is proved that the microphyte which induces it, or which constitutes it, can be successfully transplanted from a diseased to a healthy animal, and produce all the serious and characteristic lesions which mark the natural malady. If artificial, or rather experimental, transmission can be easily and successfully accomplished, there can scarcely be any reason to deny the possibility of accidental transmission ; and though at present there is no direct evidence of this having taken place, either in man or beast, yet this absence of proof may be owing to our ignorance of the nature of the disease, and consequent inability to trace or ascribe its origin to infection.

Now that we are acquainted with its pathology, and especially its etiology, and are in a position to be able to diagnose it in man and animals, we shall doubtless rapidly acquire new facts with regard to it. In the meantime, it is well to bear in mind the important fact—for which we are once more entirely indebted to experimental pathology—that the spores of this fungus, alike destructive to man and beast, may invade the body by a trifling scratch or wound, and there set up such changes as to ultimately cause death. Many such cases may have entered our hospitals and come under the observation of the surgeons, without their true nature being suspected. For, as I have already said, no instance—so far as I am aware—has been recorded as occurring in man in this country, Germany alone furnishing all the cases hitherto recorded ; and yet there is only too much evidence to show that it widely prevails among our cattle (probably also among our other domesticated animals), and therefore those who go about such diseased creatures must be exposed to accidental transplantation of the *Actinomyces*.

ADDENDUM.

Since the foregoing paper was written, M. Kaufmann, assistant-teacher of physiology in the Lyons Veterinary School, has published some investigations he has made with regard to the infectiveness of the fungus, *Aspergillus glaucus*, and as the

results of his researches have an important bearing on the subject of micro-pathology, and especially on this of Actinomykosis, I think it will not be amiss to refer to them here.

The microbes and bacterides, it is now fully established, are not the only microscopic agents capable of exercising a pernicious influence on the health of animals and mankind, as other vegetable organisms, and particularly the spores of certain "moulds," possess the same property; and it was to more fully establish this point that Kaufmann undertook his task. In the note which embodies his remarks and conclusions, and which is given in the *Archives Vétérinaires* for Nov. 25th, 1882 (p. 861), he reviews the state of the question up to the moment when he began his experiments: pointing out that in 1869, Grohe and Block produced fatal infection in rabbits, by injecting into their veins the spores of two of the commonest moulds, the *Pencilium glaucum* and *Aspergillus glaucus*. These results, however, were doubted by Cohnheim and Grawitz, who vainly attempted to reproduce them in 1874-75. But at a later period, in 1880, the last of these experimenters succeeded in producing infection with cultivated spores adapted to an alkaline medium.

The experiments which Kaufmann undertook, under the direction of Chauveau, had reference to the *Aspergillus glaucus*, and the results he obtained prove that the spores of this cryptogam are infective without any previous adaptation. The following is the *résumé* he gives of one of his experiments, those which were afterwards instituted in modifying the circumstances, having corroborated the conclusions arrived at from this one:—

"On May 12th, 1880, on damp bread I sowed the spores of *Aspergillus glaucus* procured from the surface of a dried solution of gum Arabic. This cultivation, placed in a water-bath kept at a temperature of 35° Cent., furnished numerous spores in about forty-eight hours. In order to obtain spores in abundance, I made a new cultivation on bread reduced to broth, with an acid reaction, using for this purpose the spores obtained by the preceding cultivation. This second crop, like the first, furnished spores in abundance in about forty-eight hours. I left these cultivations in the bath until May 19th, and on the evening of that day I put a quantity of spores of the second generation

in water enough to make it look slightly turbid. Into the jugular vein of a rabbit (No. 1) I injected one centilitre of this fluid ; and into another rabbit (No. 2) two centilitres. During the night of the 23rd-24th, rabbit No. 1 died ; while rabbit No. 2 was very ill, turning its head towards the side and foaming at the mouth : it died during the night of the 24th-25th. At the autopsy there were found in both rabbits the typical lesions of infection by moulds, such as Grawitz had described. The kidneys were highly congested in places, and on their surface were a multitude of white nodular points. On section from the periphery towards the hilum, it was noted that each white point on the surface was prolonged towards the medullary surface by a white line. Examined microscopically, in all these nodules the mycelium was found to be felted and already undergoing destruction. In rabbit No. 1 the mycelium tubes were yet perfectly recognisable ; they were felted and partitioned, and in every respect similar to those figured by Grawitz. In rabbit No. 2, the one that lived a day longer, the mycelia had almost completely disappeared. Some fragments were noticeable which were easily broken up.

“In the liver there were also numerous white points, which contained fragments of mycelia in process of destruction. The lungs showed a small number of white nodules, but no mycelium tubes could be discovered in them, only granules which were doubtless the product of disintegration of the mycelia under the influence of the inflammation its presence provoked in the lung tissue. Similar white points to these were also found beneath the pericardium and in the walls of the stomach.

“In these two rabbits, the spores of *Aspergillus glaucus*, cultivated on bread which had an acid reaction, produced a mortal infection exactly similar to that which Grohe and Block obtained, and also like that induced by Grawitz, with their malignant varieties previously adapted to the character of the blood by gradual cultivations.

“The spores which I injected into the rabbits did not undergo any process of adaptation to enable them to live in the blood ; nevertheless, they germinated and vegetated in the organism. Previous adaptation is therefore needless in order to render the spores of *Aspergillus glaucus* infective.”

Kaufmann alludes to the experimental results published by Koch and his assistants, Loeffler and Gaffky, and which are analogous to those obtained by himself. These German investigators believed they had discovered the cause of Grawitz's non-success. Finally, he arrives at the following conclusions:—

1. The *Aspergillus glaucus* grown on bread may produce fatal infection in the rabbit, even in an extremely small dose, 1·10th of a milligramme. Subsequently it was found that 0·05 milligramme of spores was sufficient to kill large rabbits.

2. That its previous adaptation to a liquid and alkaline medium, and to a temperature of 39° Cent. is not requisite to confer infectious properties.

3. That if this adaptation exercises any influence, it can only be accessory and very slight.

4. That the spores exposed to the temperature of the air during nearly six months preserve all their infective activity.

LITERATURE OF THE SUBJECT.

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SWINE FEVER.*

BY W. ALSTON EDGAR, M.R.C.V.S., DARTFORD, KENT.

Introduction.—The subject for our consideration this afternoon commends itself more especially to the notice of the country division of our Society, for the simple reason that most of the large herds of swine exist generally under agricultural conditions. Yet I cannot but feel that those of our members who study pathology principally in town, and consequently have little contact with the porcine race, will nevertheless take an interest in a discussion on "Swine Fever," at least from the scientist's point of view. As it is a malady included under the working of the Contagious Diseases (Animals) Act, it behoves us as scientific and practical veterinarians to be familiar—nay, far more, satiated—with it, in every detail. Forensic medicine, being endowed with no individual chair at our teaching schools, deserves, beyond all other branches of our noble science, especial attention from our medical societies. In it we collide with the medical and legal professions as well as with the public, and not infrequently we have to rub off, in the witness-box, unpleasant corners of difference with brother professionals, because the one or the other has allowed time to efface from memory a once bright recollection of this or any kindred malady.

Structure.—With this brief prelude, I pass on to explain the structure of my paper, which, for convenience and perspicuity, is arranged in three primary divisions, the first of which includes nomenclature, nature, classification, and history; the second, diagnosis, positive and subjunctive; the former embracing habits, semiology, *post-mortem* appearances, and pathological anatomy; the latter enlisting other pathological conditions simulating in some phase the symptoms or lesions of "Swine Fever;" the third concludes with measures, legal, sanitary, suppressive, and preventive. It will be noted that medicinal treatment of diseased animals does not claim consideration, as affected swine must be slaughtered.

Nomenclature.—In Great Britain the disease has received a variety of names—"Typhoid Fever of Swine," "Soldier,"

* Read at the Meeting of the Southern Counties Veterinary Medical Society, on March 30th.

“Purples,” “Red Disease,” “Swine Plague,” “Swine Fever,” “Blue Disease,” “Infectious Pneumo-enteritis;” in America it has been designated “Swine Pestilence,” “Hog Cholera,” “Intestinal Fever,” and in France “Porcine Scarlatina,” “Rouget,” etc., and is confounded with Anthracoid affections by several Continental writers. The term “Typhoid,” from its supposed resemblance to that disease in man, has been pretty generally discarded, as incorrect and misleading; the same might apply to “Soldier,” “Blue Disease,” “Purples,” and “Red Disease,” all of which are provincial terms used indiscriminately when any discoloured condition of the skin exists, and are applied to several simple, non-specific affections. “Swine Plague” is simple and expressive. “Swine Fever,” although it cannot claim technicality, appears to be the only correct designation applied in England to the malady. The term “Infectious Pneumo-enteritis” (*Pneumo-enteritis Contagiosa*), given by Dr. Klein, has the advantage of being scientific, yet, unfortunately for the title, the disease will not always conform to it, the “Pneumo” being present in the minority of cases only. “Dermo-enteritis” would be more consistent with the most frequent complications. We may see that it is easy to quibble with existing institutions, but to suggest a remedy *à propos* is, unfortunately, not a common gift.

Classification.—“Swine Fever” belongs to the Zymotic division, and is a specific exanthematous fever, possessing a bacillus that may be cultivated artificially, the said bacillus or its product probably constituting the essential *materies morbi* of the affection (reference will subsequently be made to this bacillus in dealing with preventive measures); as all the tissues (blood excepted) of the diseased animal, together with the expired air, are more or less charged with morbid matter. The malady is intensely infectious, transmitted and extended with unerring certainty.

Incubative Period.—It possesses a fairly uniform incubative period. Professor Axe, in his experiments, puts the mean at five days, and gives the limits from four to eight days. Dr. Osler, in some accurately conducted experiments, found the “rose-coloured spots” appeared in three of five cases on the

seventh day; in the fourth case the rash appeared, but the exact time was not noted; in the fifth case no rash appeared throughout the thirty days the pig was kept alive. This point cannot be decided from observations made in an ordinary outbreak, as it is impossible to define the exact date of infection.

History.—Veterinarians cannot claim a very long acquaintance with the malady, although it has been known to breeders and dealers for many years, and has probably existed in a modified form (as records of Animal Plagues will show) as long as the species attacked by it. It requires too much elasticity of thought to believe in the spontaneous origin of even a bacillus, specific or otherwise, they doubtless having been prepared by man's Creator to perform a hidden work for centuries, and it is only by modern microscopy that we have been able to appreciate the gigantic under-currents of nature. We should possess no anxiety that our prophylactic efforts will be crowned with too much success, by removing all disease and abolishing death.

In 1848 Dr. Sutton, of Indiana, gave a graphic description of Hog Cholera, or, as he then called it, Swine Pestilence, and carried out an extensive series of experiments to demonstrate its nature and method of extension, as the scourge was making a terrible sweep of the pigs throughout the principal States of North America.

In 1849 there is a brief record of "Small-pox in Pigs," by the late Mr. Broughton, of Hounslow, which, from the description of the cutaneous lesions, was probably our Swine Fever of to-day, be it or be it not Porcine Variola.

In 1862 large numbers of pigs were dying in many counties of England. Professor Simonds, in examining some animals at the early part of that year, in Berkshire, remarks, "Had never seen anything of the kind before: scarcely knew what he was dealing with."

In the same year a veterinary surgeon in Germany—Schmidt, of Jesberg—gave, in a Continental journal, a brief description of a Swine Plague that had prevailed for years in Germany. He assigned it a *middle* place between Anthrax and other blood diseases (many Continental writers have described this porcine malady as Anthracoid Erysipelas), and remarked that it seemed

to possess a character of Typhus. From his general description, the disease would appear analogous to our Swine Fever. A very large percentage of his cases presented the ecchymotic and vesicular condition of skin ; a less number exhibited the pneumonic form, invariably associated with a staggering gait and paralysis ; and although the animals gave evidence of great pain on pressure to the abdomen, the *post-mortem* examinations revealed nothing beyond "streak-like" spots of blood, or venous congestion of the peritoneum and intestines ; still he remarks the presence of excessive peritoneal fluid ; the brain and spinal cord often showed ecchymoses. Schmidt found it a disease peculiar to the pig, he having failed to transmit it to dogs, cats, poultry, and a horse, and the flesh was largely consumed by human beings without evidence of harm (this bears a strong contrast with Anthrax). It occurred as an enzoötic in warm weather, and in sporadic cases in winter attacked all ages and breeds without distinction, with very fatal results.

In 1864 Professor Gamgee reported "Typhoid Fever" existing at Edinburgh, imported from Wolverhampton, and communicated the fact to Dr. Budd, of Clifton, who, in 1865, made an investigation in a small number of cases imported to Bristol from Ireland, and read in July, before the Royal Agricultural Society, a paper claiming to be the first scientific description of the disease. The principal tendency in this essay was an endeavour to prove the complete analogy of the malady with human Typhoid ; but the divergent conditions were not fairly dealt with, consequently Dr. Budd's views have given place to the light of exhaustive subsequent investigations.

A space of ten years was now allowed to elapse, and thousands of swine to perish, before the question was seriously taken up by the profession. In 1875 Professor Axe made a very complete inquiry into the affection, and followed the line of argument taken by Dr. Budd, viz., the Typhoid character of the malady. In 1877 two investigators were at work on the disease, viz., Dr. Klein, to whose punctilious laboratory experiments the profession is deeply indebted for a knowledge of its specific nature ; and Dr. Osler, in America, where Hog Cholera had for many years produced terrible ravages and national loss. In the follow-

ing year the southern provinces of Holland were swept over by a virulent enzootic of Hog Cholera. Some further study of the disease has been made in America by Professor Law; and in 1879 the most complete investigation from that continent was furnished by Dr. Voyles.

During the past year, 1882, great losses of swine have been caused in the south-eastern part of France by a disease called "Rouget," which is still undergoing investigation by Pasteur. (This malady is characterized by a cutaneous eruption, and probably resembles Swine Fever and Schmidt's disease in Germany, although its bacillus discovered by Pasteur does not appear morphologically to resemble that isolated by Klein in "Swine Fever.") All breeds and ages are alike attacked by the disease, although young animals suffer a much greater mortality than mature ones. This probably applies to all species attacked by any zymotic.

Diagnosis.—In this, as in all infectious diseases, an early recognition is most desirable; therefore, for the practical surgeon, the subject of diagnosis is most important. We can call to our aid, in forming it, all positive evidence, and this not being sufficiently clear, the negative aspect may be reviewed. We have, in daily practice, frequently to decide if reported cases are really the specific malady, as some pathological conditions may be, and are, mistaken for it, even by the duly qualified, such as some of the following affections: Urticaria, Erysipelas, Erythema produced by *Pulex Immitans*, Parasitic Broncho-pneumonia, Diphtheritis, Septicæmia, Gastro-enteritis, Anthrax, Apoplexy, etc. There is no difficulty in distinguishing a typical case of Swine Fever from any of the foregoing, but I think we shall be agreed that, in all affections, ambiguous and partly developed cases require extra and careful investigation. Our first point is generally to get, as nearly as possible, the history of the animal or herd. I need not enlarge upon the value of such information. The change of habits will next be noted, although this is of no diagnostic value. The affected swine are less vivacious than usual, and do not care to leave their bed when the periodical meal is brought them. If at pasture, the favourite habit of burrowing is abandoned: they lie about

huddled together while the healthy animals are engaged in feeding.

(To be continued.)

THOUGHTS ON ENZOOTIC DISEASES.

BY THOMAS GREAVES, F.R.C.V.S.

WHENEVER I feel to be impelled by a strong desire, an overwhelming desire, to take my pen and write an article on any special subject, it is at those times when my earnest attention has just been particularly occupied in the study of the subject, having had to contend with it and investigate it in all its bearings, gravity, and seriousness ; and by contemplating it from every point of view—not only the sources whence it emanates, and the removal of various causes, but also the best means of combating it, and so restoring the poor afflicted animal to health. My desire is to record such thoughts as have occurred to me whilst so engaged in the midst of my patients, and entirely without referring to those most excellent works of Fleming on sanitary science. Those works, I assume, are in the possession of, and have been studied by, every veterinary surgeon in the three kingdoms. What I am now doing is a sort of “extra utterance” on the subject, and has two objects. The first is to assist, as far as in me lies, my professional brethren when so engaged, and the second is the luxury of doing good, or thinking that I am doing good.

When a veterinary surgeon is summoned to attend an outbreak of disease—call it by that euphonious name, “Pink-eye,” if you like—and finds the number of cases becoming numerous in a few days, some of them assuming serious and complicated forms, it is his bounden duty to cast about, find out the cause, and get it removed as soon as possible. I grant you that it is very important to adopt prompt and proper medical attendance to the poor animal that has become affected, but important as this duty is, it is not a tithe of the importance of finding out the cause and removing it. My first question is, “*Have you exhausted the resources of civilisation ?*” If you have not, and limited your

attention to the medical care of the cases, then I would say you have failed egregiously in the performance of your duty as an efficient veterinary surgeon.

1st. Have you got Damp, Foul Stables ?—By all means get fires in them at once—fires made of coke, in movable grates. Light them outside the stable ; let all the smoke and sulphurous fumes pass away, then carry the grates into the stalls for twenty minutes each. Do this two or three times a week ; it will tend to change the character and quality of the air in the stable. Sprinkle quicklime in every stall. I prefer this to any special disinfectant. You can also fumigate each stall by taking a shovelful of hot ashes, not white-hot nor red-hot, and pour upon the ashes a tablespoonful of carbolic acid. A dense, white smoke arises ; this kills all germs and poison in the air. If the acid be poured upon the ashes when too hot, an explosion takes place, and a black fume ascends : this is burnt acid, and is of no use whatever. It will be readily understood that, although I may be able by these means to destroy every germ and every particle of poisonous exhalation to-day, and in so far mitigate the virulence of the evil, still the atmosphere in the stable soon becomes charged again to-morrow, from the same source, so long as it is allowed to exist.

2nd. See to the Ventilation.—I remember being once taken into a large stable in Manchester, out of which they had had fifteen or twenty of their best horses taken out dead during a period of about three months. Two died that very morning. The ventilation was pointed out to me as being perfect ; the stables were very lofty, and high up there was abundance of ventilation. But I remarked, “The horses do not breathe up yonder ; they are breathing here within two feet of the floor, and here it is like inside a well. You ought to have an opening here, and here, and here, a foot square, on the ground surface, for ingress of fresh air, and the highest point for egress of heated, foul air.” These alterations were made that very day, and fires burnt ; and, strange to say, not another horse died or was attacked with the disease. The above cases occurred fifteen or twenty years ago, and were true cases of what would now be called Pink-eye. Some of them had closed eyes and bowel

complications. I had at the time numbers of the same kind of cases in other large establishments, but very few were fatal.

3rd. Stable Drainage.—This is a matter of immense importance in large stables, where the drains have been laid twenty, thirty, or forty years. There can be no doubt whatever that there must be various accumulations festering and rotting, giving off intensely disagreeable and poisonous exhalations. We may call these disease-germs. They are constantly ascending, day and night ; and in a close, badly-ventilated stable this foul air becomes unbearable. But the poor horses are forced to live in it and sleep in it continually for weeks and months, until the constitution has imbibed so much of it, and the blood has become so much deteriorated, that if a season of intense cold intervenes, and these horses get starved and chilled, they very probably take a cold, or become affected with Influenza. They may die like rotten sheep. This is called “Pink-eye.” The lungs soon break up, stinking breath and death is almost certain speedily to take place. At one of the largest establishments the drains had been down many years. We were never free from cases of chest Influenza of a typhoid character for twenty years. I have been urging that these drains should be taken up and surface-drainage adopted. The company had four of their stables done about six months ago—that is, the whole of the pavement was taken up, the drains taken up, and every portion of dirt and rotting accumulations thoroughly removed, and the drains filled up with good gravel. The men, while doing this work, had to have handkerchiefs over their mouths and nostrils, and go to the door every five minutes for fresh air, so strong was the stench. The whole extent of the stable had a 14-inch thickness of concrete ; then the pavement was laid with proper fall, then asphalte run in between every set, making it everywhere impervious to water. Since then we have had eighty to one hundred cases of chest Influenza from the adjoining stables, but not a single case out of these four stables. I have known and heard of other large establishments which were complete hotbeds of Influenza for a long time ; but after drains had been taken up and surface-drainage adopted, Influenza became a disease quite unheard of.

4th. *Treatment of these Disorders.*—It has fallen to my lot to visit several large towns to see some hundreds of cases which had been designated “Pink-eye.” I found in some places one-third of their entire stock had been swept off. In other places their entire stock had been carried off. I have heard veterinary surgeons say they all die which are attacked in a few days. I examined all the cases with great care, especially with regard to the nature and history. The conclusion I have arrived at is, that it is nothing more or less than Influenza, pure and simple; it has nothing of a special character about it. I entirely confirm the opinion expressed by Professor Simonds on this point. We have these cases to contend with in Manchester continuously, more or less, in one establishment or another. We are never free. But I venture to assert that our losses on the average are not more than two per cent. I find it is the custom in some towns to have the patient’s legs bandaged up to the knees and hocks with hay or straw bandages, notwithstanding their feet are burning hot, and the legs very tender from œdema. Remove the bandages, and you find indentations you could lay your fingers in, made by the bandages. This has, no doubt, been the cause of great pain and suffering, has aggravated the case, and is very objectionable. There is not sufficient care taken in keeping the entire surface of the body of a proper heat; the ears in almost every case are as cold as marble. It would appear that little or no importance is attached to this particular. I, on the other hand, attach very great importance to it. *No patient is going on favourably if his ears continue deathly cold.* We know that the ears may be frequently pulled, and as often go cold again. You may put a good thick hood on, even a second and a third, and still the ears will be as cold as a stone. Now, I never use hoods, and never have cold ears. I have a horse-cloth, or a good thick sack stitched round the patient’s neck, and supply the attendant at every place with our ear liniment. He drops six or eight drops on to the palm of his hand, rubs his hands together, and then rubs the ends of the ears well between his hands; the ears will then keep hot for three or four days. Now let us consider for a moment what this simple treatment effects. It causes a greater determination of blood to the head and on the brain,

enabling that vital organ to perform its functions with more vigour. The patient is always more cheerful. Again, in giving a drink, I find it is the custom with some practitioners to give a horse a drink with a twitch on his nose, and hold his head up by it. This custom, I consider, cannot be too strongly reprobated. In the first place, it maddens and punishes the patient, causes him to be stupid and stubborn, and almost unconscious. He will hold the drink in his mouth, and gurgle it a long time ; and if he happens to have a sore throat, there is nothing more likely than he will get some of the drink (if only a teaspoonful) passed down the trachea into the lungs. This done a time or two a day will cause fatal consequences in two or three days certain. I avoid giving balls or drinks in all cases of sore throat. Give medicine in the water he drinks, stimulate and poultice the throat; and steam his head, but not in a bag ; and put cloths wrung out of hot water round his chest. If the breathing be much accelerated, I often take a shovelful of hot ashes into the loose box, and sprinkle upon it a tablespoonful of powdered nitrate of potasse. The fumes from this have a clear avenue into the lungs, and come direct into actual contact with the diseased lung-tissues. I know no better sedative—if, in fact, we have any that has the effect of causing subsidence of tumefaction and disease in the lungs. The practitioner should never miss making a *post-mortem* examination. It will teach him more than anything ; besides, it will show him the exact state it was in when dying, and the stages the disease had passed through. If the disease has progressed into the third stage, as it will sometimes do insidiously, in spite of the most careful treatment, the pulse and breathing in some cases will not be much accelerated, sticks to his eating ; but if we have the rusty, broncho-pneumonic discharge, the grey hepatisation has taken place, and disintegration of lung-tissue set in. Could our patient expectorate freely, as man does, we could save the majority of these cases ; but that not being the case, vomicæ results, and no kind of treatment will avail. Or, if the disease has assumed the other alternative, Hydrothorax, and our patient die, in the ordinary course of things he will arrive at this point usually in about three weeks—sooner if the disease has been driven on at express speed by violent counter-irritation.

5th. *Employment of Medicaments.*—I find some practitioners administer ingredients which, I am convinced, have a most pernicious effect upon the horse ; for instance, they give spirit of nitrous ether, tincture opii, tincture pimento, etc., which are made from methylic spirit. I have a strong conviction that this is a grave mistake, as it contains wood naphtha, which I look upon as a slow poison in the horse. Once I was induced to use it for a time. I had twelve cases in one stable and numbers of others in other stables, that had half-ounce doses of spirit nitrous ether and half-ounce doses of tincture pimento given twice a day. My patients made no progress ; they had the best possible nursing and attention ; pulses ranging from 64 to 96 ; day after day they were stationary or retrograding, loathing all food, and looking like poisoned rats. It flashed across my mind, “Some ingredient I am giving is at the bottom of this.” I at once discontinued its use, and used none but what was made from pure rectified spirit, and after the second dose they were all better. They rapidly improved, and all recovered. It seemed to regulate weak or disturbed nervous power, clear the head, and assist the appetite.

“PINK-EYE.”

BY THOMAS W. CAVE, M.R.C.V.S., NOTTINGHAM.

HAVING had, during the last few months, ample opportunity of studying the symptoms and course of the disease commonly known as “Pink-eye,” which has been so exceedingly prevalent in various parts of the country, it will not, perhaps, be out of place to record the results of my observations for the benefit of those who have not as yet become practically acquainted with it. The first outbreak of this epizootic which came under my notice in Nottingham, commenced in January, 1882, and, as far as my experience went, was rather extensive, the disease raging in various parts of the town for three or four months.

The second outbreak commenced in the first week of January last, and the disease has continued up to the present time,

although its spread was markedly checked by the cold, frosty weather of the middle and end of March.

The disease is evidently a specific fever of a highly contagious and infectious nature. It has a distinct period of incubation, of probably two or three days' duration. I have fixed this time from the fact that when the first symptom, *i.e.*, the loss of appetite, is noticed, the temperature usually ranges from 103° to 105° F., and I have found that the loss of appetite occurs on the fifth day from the time of infection ; so that the first elevation of temperature would probably occur about the third day after infection.

Accompanying the loss of appetite, other symptoms are noticeable ; disinclination to move when brought from the stable, cracking of the joints of the extremities, frequent changes of posture, first one leg being rested and then another. The pulse at this period ranges from 40 to 60. Respiration normal, temperature 103° to 105.8° . It will probably be found that the horse has not lain down during the previous night. For the next five days from the first loss of appetite, no other symptoms beyond those I have mentioned above are noticeable, except, in some cases, swelling of the legs ; but during this period the pulse is increased in frequency, ranging from 60 to 80, the temperature rises in some instances to 106° . Respirations still remain normal, or but slightly increased ; the inappetence is continued. The œdematous condition of the extremities may or may not occur, but is usually more prevalent in cart-horses. On the fifth day, still dating from the loss of appetite, the eyes are first noticed to be affected, at first appearing weak and unable to bear any sudden access of light, and overflowing with tears ; the conjunctiva now becomes inflamed, and assumes a deep red colour, and has a sodden and swollen appearance ; the eyelids become tumefied, and the palpebral fissure is partially or wholly closed. One or both eyes may be affected ; if both, one more severely than the other. As soon as the eyes show these characteristic symptoms, a marked change takes place in the general condition of the patient ; the temperature rapidly falling, often to the extent of three or four degrees in the twelve hours ; the pulse becomes less frequent ; the appetite returns, and the animal

lies down for the first time since the commencement of the disease.

In ordinary cases the patient now soon becomes convalescent, the eyes rapidly resuming their natural appearance, and the temperature and pulse becoming normal in two or three days.

From these facts it would seem that the crisis of the fever is reached at the tenth day from infection, and the fifth from loss of appetite ; and that the poison is eliminated from the system through the mucous membranes generally ; for in some cases this process of elimination appears to cause severe diarrhœa, which, accompanied by flatulency and abdominal pain, commences when the eyes become affected, the mucous membrane of the bowels probably being congested, and in a similar condition to that of the conjunctiva. In all cases, at this stage, there is a decided tendency to laxity of the bowels, and great care must therefore be taken in dieting.

These observations were made more particularly on those cases which were in our infirmary, and therefore continually under my own care ; and I found it easy to foretell correctly the exact date when the eyes would first become affected.

I take these as typical cases, in which the disease runs its natural course without being aggravated by further complications.

In more severe cases the eyelids remain swollen for several days, the deep red colour of the conjunctiva only gradually subsiding, and the appetite slowly returning. In some cases lung complications were present, but only in those in which the debility was excessive, and to which, in my opinion, they were due, the lungs being only passively congested, and not the seat of active inflammatory action. In a few instances partial loss of power in the hind extremities was noticed. Then, again, an intermittent pulse was frequently present during convalescence.

When the animal is aged and in a poor, worn-out condition prior to becoming affected, the diarrhœa and the lung complications are likely to prove fatal ; but in general, when the animal is in a fair condition, the disease is unlikely to be so, except through neglect and want of proper treatment, or through

continuance at work too long after the first symptoms have appeared.

It is interesting to note, that although a large number of cases came under my notice during the early part of 1882, not one of these, as far as I know, were affected again during the recent outbreak; and also that the disease appeared to be decidedly more severe this year than last.

It is also certain that isolation is effectual in stopping the spread of the disease, if carried out immediately the first symptoms are seen; several instances having occurred in my own experience in which, by early removal of the affected animals, the rest of the stud escaped.

Of the *post-mortem* appearances, I am happily unable to speak, except in one case, where the animal was aged and worn out, and obstinate diarrhœa and abdominal pain set in, which rapidly proved fatal to the patient, already greatly debilitated. On *post-mortem* examination, I found the mucous membrane of the large bowels congested throughout, and also congestion of the lungs.

The treatment I have adopted, has been frequent exhibition of diffusible stimulants in small doses, salines in the drinking water, and in those cases in which the debility was excessive small repeated doses of alcohol. After the febrile stage is over, I found the use of vegetable and mineral tonics specially valuable, more particularly Quiniæ sulph., *et* Liq. ferri dialysat. In cases complicated with diarrhœa and abdominal pain, in which alteration of diet was not sufficient, I have given small doses of Pulv. opii., with port wine and arrowroot.

In conclusion, I may say I have not found that the disease presents any great difficulties where the cases are seen in the early stages, and provided the animal is in fair condition; and also that isolation at the commencement is specially successful in stopping the spread of the disease.

ON AN INFECTIOUS ULCERATIVE DISEASE OF SKIN AND MUCOUS MEMBRANE CAUSED BY A SPECIFIC BACILLUS.

BY ALFRED LINGARD, M.R.C.S., AND ERNEST E. BATT, M.R.C.V.S.

A DISEASE of the above character having yearly caused considerable ravages among young cattle in this country, portions of the affected organs were received by us at the Brown Institution for examination.

The following are a few points we wish to make known prior to the completion of the research, which is so far advanced that it will shortly be published in full:—The tongue and mucous membrane of the cheeks are the usual localities of the primary lesion. The typical ulcer in advanced cases consists of a sore with free overhanging edges. On section through the sore, the tongue is found to be necrosed to a considerable depth opposite all parts of the ulcer. Wherever the sore touches any other part of the mouth or cheek, the disease is communicated and rapidly spreads. In some cases similar necrotic changes had taken place in the lungs. The line of junction of the necrotic with the healthy tissues was found to be occupied by a mass of bacilli having the appearance of a dense phalanx advancing upon the healthy tissues. The disease has been proved capable of transmission by the bacilli in question, which are equally numerous and virulent after passing through several generations by inoculation.

RHEUMATIC ARTHRITIS IN LAMBS.

BY J. B. GRESSWELL, M.R.C.V.S., LOUTH.

SO many severe outbreaks of a rheumatic character have occurred during the past six or seven weeks among the lambs in North Lincolnshire, that some observations as to the symptoms, nature, and treatment adopted may prove of interest to the readers of the VETERINARY JOURNAL.

The disease especially attacks young lambs varying in age from two to four weeks old. During the past few weeks, no less than 800 or 900 cases have come under my notice. In some instances the disease has manifested itself in a mild form, while in other cases it has been of a very severe character. Indeed, on one particular farmstead forty lambs died before any advice was sought for, and forty more succumbed during the following week.

The disease assumed its worst form on the tops of the Wolds ; but outbreaks of a serious nature have also occurred in the marshy districts.

Firstly, with regard to the food. The ewes have been fed upon various diets. In some cases they had been allowed $\frac{3}{4}$ lb. of linseed cake per day, in addition to swede turnips. In other cases they had no cake, but only mangel-wurzels or swedes. A few had been allowed half a quartern of oats per day.

Some of the fields lay in sheltered parts, others were more exposed. In many cases, shelter was provided for the sheep, but in others no such provision was made.

Secondly, with regard to the symptoms.

The affected lambs at first separate from the rest. They appeared dull and dejected, and moved with difficulty and unsteady gait. The pulse was hard and quick, small in volume in some ; it was irregular and intermittent in others. The temperature in those cases in which it was taken, varied from 104° to 107.5° Fahr.

The joints, more especially the knees and hock joints, were extremely hot, tender, and painful. In many cases there was a discharge from the eyes and nostrils, in some cases from the eyes only. The lambs refused to suck and lay about the fields in the most sheltered spots, utterly helpless. The tongues were hot and dry, and in many cases of a purplish hue. The bowels were constipated, and the urine dark in colour.

Many of the animals died in this pyrexial state ; some seemed to partially recover, moved somewhat more easily, and commenced to suck again. But this partial recovery was not always permanent, for in some cases the joints, sometimes both knees and hocks, sometimes only one joint, began to enlarge very rapidly,

and the pulse again to rise. The swellings varied in size from that of a hen's egg to that of a small orange.

The effusion sometimes discharged itself spontaneously, while in other instances it firstly became still more copious, and then was finally absorbed.

Thirdly, as to the pathological changes found after death. The autopsies made revealed signs of general pyrexia.

The heart and lungs were not as a rule affected. The knee and hock joints showed signs of acute synovitis. When cut into, a large amount of greenish-yellow purulent matter escaped. The cartilages of the joints were roughened, and in some instances eroded. The ends of the bones were, in two instances, exposed.

And now a few remarks as to the nature and cause of this affection. I feel no doubt that it is acute Rheumatism, and that it is caused by an acid condition of the ewes' milk. As an additional cause, may be mentioned the extreme cold to which both the ewes and lambs have been exposed. We cannot assign the nature of the food or the locality as causes, as in each case they varied.

Finally, with regard to the treatment. To the ewes, Bicarbonate of Potassium and vegetable tonics were administered. To the lambs in the early stages, small doses of Sodium Salicylate internally were given in a tea-spoonful of water, and soap liniment was applied, with friction, externally. In the later stage, the Bicarbonate of Soda was administered, and externally painting the joints with tincture of Iodine.

Editorial.

PROTECTIVE INOCULATION FOR ANTHRAX.

THE great importance which attaches to the discovery of protection from virulent maladies by inoculation with their attenuated or modified Virus, and the doubts which have been raised in some quarters as to whether this protection is really conferred, will doubtless form the subject of very extensive investigation and practical demonstration before many years have elapsed. Already this protection has been most largely invoked in the disease known as Anthrax, the operation which has been designated "Anthrax vaccination" having been resorted to on a very wide scale in different parts of the Continent, but particularly in France, where no fewer than eighty-five thousand animals have been so inoculated within a year, in order to preserve them from the attacks of this deadly scourge, in one portion of that country only. The startling efficacy of this protective inoculation having been demonstrated by Pasteur and his assistants at Pouilly-le-Fort and in Chartres, to veterinary surgeons, agriculturists, physicians, and others, the measure soon became popularised, and to such an extent that in the department of Eure-et-Loir alone, where the disease is most destructive, about 80,000 sheep, 4,000 to 5,000 cattle, and 500 horses were operated upon by the departmental veterinary surgeons in 1882. The results of the year's work have been looked forward to with some anxiety, and the Veterinary and Agricultural Society of Chartres has endeavoured to satisfy the desire for information by collecting statistics up to October last, and publishing them under the direction of M. Boutet, veterinary surgeon of that town. The report is somewhat lengthy and detailed, but very instructive, and it shows that during the year there were inoculated 79,392 sheep. For ten years the annual average loss among the flocks from Anthrax was 7,237, or 9.01 per cent. Since the adoption of inoculation only 518 sheep, or 0.65 per cent., had died. But it is noted that the mortality from the malady is always most severe during dry, warm years, and as the past year was rather wet, it is probable that the mortality would not have been more than three per cent. So that the loss, if inoculation had not been adopted, would have been 2,382, instead of 518. All the flocks were not inoculated: 2,308 having been operated upon, and 1,659 allowed to remain unprotected. The mortality among the inoculated was eight, or 0.4 per cent.; while among the unprotected it was sixty, or 3.9 per cent. Both the inoculated and the non-inoculated were exposed to the same influences of soil, shelter, food, temperature, etc.

The veterinary surgeons of Eure-et-Loir inoculated 4,562 cattle in the course of the year. Among these animals the loss had been annually 322; but since the adoption of inoculation it was only eleven: so that instead of being 7.03 per cent., it was only 0.24 per cent.

In consequence of the secondary, though not serious, tumefaction occurring in horses after inoculation, as well as the lesser mortality among this species from Anthrax, the operation was very limited, only 524

animals having been submitted to it, two of which died between the first and second inoculations.

The report terminates by stating: "These results appear to us convincing; in the presence of such figures there can no longer be any doubt as to the efficacy of Anthrax vaccination. If the farmers of Beauce understand their own interests, the anthracoid affections will soon be only a *souvenir*; for Anthrax, Splenic Apoplexy, and Malignant Pustule are never spontaneous, and in preventing the mortality among their cattle by vaccination, they destroy all the causes of propagation of Anthrax, and consequently they will in a few years cause this redoubtable affection to disappear from Beauce."

This report must be considered as very satisfactory; inasmuch as it deals with the figures after the most dangerous season had been passed, and therefore affords, in addition, some idea as to the duration of immunity after inoculation. It will be seen that with the inoculated and non-inoculated, which were mixed and fed together, the mortality was ten times larger among the latter than the former. There is another consideration which should not be lost sight of in estimating the value of protective inoculation, as shown by these statistics. The operation is entirely novel, and it has only been practised for one year in the Anthrax-haunted districts. Mistakes and imperfect inoculations might therefore be calculated upon, and doubtless did occur. In time these will be greatly diminished, as the veterinary surgeons become more expert, and better understand the conditions upon which successful inoculation depends; so that the mortality will be greatly lessened, or altogether *nil*, among the animals which have undergone the operation. In France, towards the end of last year, 13,000 sheep, 3,500 oxen, and twenty horses were inoculated without a single mishap. And that the inoculations were protective may be surmised from the fact, that some time after the operation, twelve of the inoculated sheep were re-inoculated with non-cultivated Anthrax virus with absolute impunity, while the same number of non-protected sheep inoculated with it speedily died. These facts and figures, derived from actual experiment and clinical observations among animals which are naturally liable to Anthrax, and in regions where its attacks are most frequent and deadly, are far more valuable and trustworthy than mere surmises and deductions drawn from two or three experiments performed under unfavourable conditions upon creatures which are not naturally the victims of the malady.

ABSTRACT OF REPORT ON THE RELATION OF MICRO-ORGANISMS TO TUBERCULOSIS.*

BY W. WATSON CHEYNE, M.B., F.R.C.S., ASSISTANT-SURGEON TO KING'S COLLEGE HOSPITAL, ETC.

A VISIT was paid to Professor Toussaint of Toulouse, and to Dr. Koch at Berlin, with a view of seeing their methods of experimentation, and the results which they had obtained. Various experiments were seen, and a

* Presented to the Association for the Advancement of Medicine by Research, on February 1st, 1883.

quantity of material was brought back to England for more detailed examination. The result of the visits and a full account of the observations made will be found in the complete report which will be published in the April number of the *Practitioner*.

It was thought advisable in the first instance to repeat some of the experiments which have led observers, more especially in this country, to object to the view of the specific origin of tuberculosis, and to hold that in rodents, at least, any irritation might produce that disease. The present series of experiments were performed under the best hygienic conditions, with complete isolation of the animals from each other, and thorough disinfection of the instruments employed. In six cases setons of various kinds were introduced—both subcutaneously and into the anterior chamber of the eye; in ten, vaccine lymph, both from the calf and from man, was employed; in three, pyæmic pus was injected—(1) into the eye, (2) subcutaneously, and (3) into the abdominal cavity; and in six, various materials (cork, tubercle hardened in alcohol, and worsted thread) were introduced into the abdominal cavity. None of these twenty-five animals became tuberculous. Some experiments are also cited in the report, in which wounds in rodents have been stitched up with cotton thread, and others in which abscesses have been produced in various ways; but in none of these cases did tuberculosis ensue. In explanation of the former results, it is pointed out that at the time the early experiments on this subject were made the communicability of tubercle by mediate contagion was not recognised; and as the precautions necessary for thorough disinfection of instruments, etc., had not at that time been made out, the channels for the introduction of specific micro-organisms were left unguarded.

Two tubes of serum containing micrococci were obtained from M. Toussaint, who holds that micrococci are the cause of the disease. Toussaint obtains these organisms by inoculation of flasks containing serum, or infusion of rabbit, with the blood of tuberculous animals; and he has in some cases succeeded in producing tuberculosis by the injection of these cultivations into other animals. The material obtained from M. Toussaint was injected into three rabbits, two guinea-pigs, one cat, and one mouse; and of these seven animals, six were under observation for a sufficient length of time for the development, at least, of local tuberculosis. In no instance did tuberculosis occur. (In all the experiments detailed in this report inoculation was made into the anterior chamber of the eye, whenever this was practicable. Syringes, purified by heat, were employed for the purpose.) Cultivation of these micrococci were also made, and injected into nine rabbits and three guinea-pigs. Of these, four rabbits and three guinea-pigs were under observation for a considerable time without the development of tuberculosis in any case. The total result is that thirteen animals were inoculated with the micrococci with which Toussaint works, and obtained from Toussaint himself; and in no case did tuberculosis occur.

A number of tuberculous organs from animals experimented on by M. Toussaint were also obtained, some of the animals having become tuberculous after the injection of his micrococcal fluid. Careful examination of these organs has shown the presence—often in large numbers—of the tubercle-bacillus described by Dr. Koch, but no micrococci were found. The conclusion arrived at is that the micrococci described by Professor Toussaint are not the cause of tuberculosis. One of the possible explanations of the results, which should not be left out of account, is the following:—Professor Toussaint trusts greatly to carbolic acid as a disinfecting agent for the purification of the instruments employed in inoculation. This antiseptic, though effectual for the destruction of the ordinary forms of micro-organisms, as evidenced by the satisfactory results obtained from its use in

aseptic surgery, has been shown to be ineffectual against the spores of bacilli, unless it acts for a long time. The bacillus of tubercle apparently produces spores, and there is no reason to suppose that these are less resistant than those of *Bacillus anthracis*, and other bacilli. An experiment is given which shows that a saturated watery solution of carbolic acid, even though it acts as long as fifteen minutes, is not sufficient to arrest the development of the tubercle-bacilli. Therefore to wash a syringe with carbolic acid is not such a certain means of disinfection in this particular instance as was formerly supposed.

Experiments were also made with cultivations of bacilli obtained from Dr. Koch. Twelve animals were inoculated with these organisms, chiefly into the anterior chamber of the eye, and all of them became tuberculous, and that more rapidly than after inoculation of tuberculous tissue. The tubercles produced in these cases were infective, and caused tuberculosis in other animals. On examination of tuberculous material, Koch's tubercle-bacilli are always found, though in varying numbers. They are most numerous in bovine tuberculosis, and least numerous in human tuberculosis. About eighty organs of tuberculous animals, and thirty-six cases of human tuberculosis were examined, and in all of these, without exception, tubercle-bacilli were found. The inoculation of these bacilli is more certain and more rapid in its effect than the inoculation of tuberculous material from any source ; and this seems only explicable on the supposition that in the cultivation of these bacilli the virus of the disease is present in a more or less pure state, and in large amount. Various facts are pointed out, leading to the conclusion that in these bacilli we have the virus of the acute tuberculosis caused in the lower animals by the inoculation of tuberculous material.

In applying the facts obtained from experiments on animals to the pathology of tuberculous diseases in man, it is pointed out that all that has as yet been absolutely proved is that a variety of materials in man which we class together as tuberculosis produce acute tuberculosis when inoculated into rabbits, guinea-pigs, and other animals, and that this result is due only to the tubercle-bacilli present in the materials inoculated. It therefore remains for inquiry what relation these bacilli bear to the morbid processes in man in which they are found.

Acute miliary tuberculosis in man resembles in every respect—in histological structure, in tendencies, and in the presence of bacilli—the disease produced in the lower animals by the inoculation of tuberculous material, and there can be little doubt that the cause of both diseases is the same, viz., the tubercle-bacillus. It is, however, much more difficult to understand the relation of these organisms to the localised tuberculous processes in man (phthisis, scrofulous diseases of glands, joints, etc.). Phthisis is alone considered in the present report, and with a view of making clear the conception which the author has formed as to the relation of bacilli to this disease, the following facts are brought forward, which he has observed as to the mode of distribution of these organisms in the tissue, and their relation to its histological elements.

Two distinct structures have been described as tubercles in the lungs of rodents, viz., nodules of lymphatic tissue in close proximity to the vessels and bronchi, and nodules which are largely made up of epithelioid cells. If a case of commencing artificial tuberculosis be examined, it will be found that bacilli are only present in the latter nodules ; indeed, it is rare even in the later stages to find them in the former, and in that case epithelioid cells will be found as well. The bacillus being the cause of the disease, the nodules containing epithelioid cells are alone tubercles. Further, on careful investigation of these nodules, it will be found that bacilli are only present in the epithelioid cells themselves. In making this statement, only young tubercles, and those in which the bacilli are present in moderate numbers, are referred

to. Where there are enormous masses of bacilli, or where there has been confluence of tubercles, forming a largish tubercular deposit, some bacilli may be found in the outer part of the tubercle ; but the great majority of them occupy the epithelioid tissue. Where the bacilli are few in number, one need only look for them in epithelioid cells. Around the epithelioid cells the tissue becomes inflamed, and converted, more or less completely, into granulation tissue. As the tubercle becomes older, the epithelioid cells at the centre undergo caseous degeneration, and in this case the bacilli are present in the caseous mass, but are often best seen at its margin, where epithelioid cells still exist, and they may also be found penetrating into the inflammatory tissue. The giant-cells of tubercle can be distinctly traced as originating from epithelioid cells, especially from epithelioid cells containing the bacilli. As to the origin of these epithelioid cells in the lung, the great majority are undoubtedly derived from the alveolar epithelium. The bacilli escape from the blood-vessels or lymphatics, and pass into the alveolar epithelium, where they grow, and cause multiplication of the epithelial cells until the alveolus becomes completely filled with them. In some instances, however, these cells are probably derived from the endothelium of blood and lymphatic vessels. In the case of the liver, the author thinks that they are frequently developed from liver cells ; for the bacilli may be found in liver cells at the margin of commencing tubercles, and gradations in size and form can be traced between these liver cells and the epithelioid cells in the centre of the tubercle. The accumulation of the epithelium in the centre of the nodule leads to obliteration of the vessels around, and to fusion of neighbouring nodules.

With regard to phthisis, the two extremes, the rapid phthisis, or caseous pneumonia, and the chronic or fibroid phthisis, are considered. In the rapid phthisis the alveoli are distended with caseous material, or, in parts where the process is less advanced, with epithelioid cells. Surrounding these the trabeculæ are thickened and converted into granulation tissue. Here the bacilli are found in moderate or considerable numbers in the caseous material and epithelioid cells, which fill the alveoli. By-and-by the walls of adjacent alveoli disappear, and thus irregular cavities are formed, containing caseous material, surrounded by epithelioid cells and inflammatory tissue. In this the bacilli are most numerous, and sometimes in enormous masses at the free margin of the cheesy material ; and they are also present, though not generally so numerous, in the epithelioid cells at the line of junction of the caseous mass with the surrounding tissue.

In fibroid phthisis the bacilli are, as a rule, extremely few ; but here and there, if a cavity exist, or in the centre of a caseous mass, one may find them in considerable numbers. They may, though very rarely, be also found in the giant-cells, which are generally pretty numerous among the fibrous tissue. As a rule, however, the bacilli are extremely few, but, nevertheless, if a sufficient number of sections be carefully examined, a few will be found here and there at the margin of or in the caseous masses.

The foregoing facts seem to indicate that when the tubercle-bacilli reach the alveolus of a lung, which is in a suitable condition for their growth, they develop in the epithelial cells lining the alveolus. This alveolus becomes filled with cells, neighbouring alveoli become affected, and the same process goes on in them. The further result will depend on the number and growth of the bacilli, and on whether the patient is a good soil for their development. If they develop well, we have caseous pneumonia ; if they grow slowly and with difficulty, we have fibroid phthisis. In the former case the alveoli become distended early with epithelioid cells, inflammation of the walls of the alveoli ensues, the epithelioid cells soon undergo caseous degeneration, and the pressure of the masses leads to atrophy or sloughing of the walls of the alveoli. Infection of neighbouring parts of the lung occurs both by continuity

and also by partial coughing-up and re-inhalation of the bacilli into other parts of the lung. In this rapid phthisis fibrous formation around the alveoli only takes place imperfectly, and the lung rapidly breaks down.

In the case of fibroid phthisis the bacilli are few and grow only with difficulty. Thus fibrous formation occurs extensively, and giant-cells are entangled in this fibrous tissue. In parts, however, the process may be more rapid, and there cheesy masses are formed, which may lead to breaking down of the lung and the formation of cavities.

In the report it is pointed out that on this view we have one explanation of the rarity of acute tuberculosis in connection with phthisis, and of the presence of bacilli in sputum even before physical signs are marked ; while it is shown that this view is directly corroborated by the results obtained by Tappeiner in his inhalation experiments. Against the statement that phthisis is due to the tubercle-bacilli might be urged the fact that the bacilli found in the lung after death are often very few in number. Among other facts brought forward with regard to this question, it is stated that very extensive tuberculous processes may be found in animals containing only few bacilli, and that in cases where bacilli alone were inoculated, and where it is certain that the bacillus was the only agent at work. With regard to the production of phthisis by the inhalation of dust of various kinds, it is pointed out that the foreign particles inhaled probably only prepare the lung for the reception of the bacilli, for in those cases also bacilli are found. It has often been urged that the milk of tuberculous cows is infective. This may be the case when the mammary glands become tuberculous, and the mode in which the bacilli might get into the milk was well illustrated by the appearances found in a tuberculous kidney. There not only were bacilli present in the tubercular mass, but they were also found in large numbers in the epithelium of the kidney tubules, and in the interior of those tubules, both in the vicinity of the mass and at some distance from it. The author has not yet investigated the subject of tuberculosis of the kidney, but from what he has seen he thinks it probable that the epithelium of the tubules is the favourite seat of the bacilli in the kidney, just as the alveolar epithelium is in the lung. In that case bacilli would be present in the urine, not merely when there were marked tuberculous masses in the kidney, but also when the disease was but slightly advanced. From analogy, it is probable that the same is the case in the mammary glands, and bacilli might be present in the milk, even though the disease of the gland was not sufficiently advanced to be noticeable.

The staining solution employed was the Weigert-Ehrlich solution. The formula is : Of a saturated watery solution of anilin, 100 parts ; of a saturated alcoholic solution of the basic anilin dye (methyl violet, gentian violet, fuchsin, etc.), eleven parts. Mix and filter before use. Rapid staining is obtained by warming the solution. The specimens are then decolourised by immersion in nitric acid (one part to two of water), and stained in a suitable contrast dye. Very delicate sections are apt to be injured by immersion in the nitric acid. In this case, after staining them in the Weigert-Ehrlich fuchsin solution, they may be washed in distilled water, immersed in alcohol for a moment, and then placed in the following contrast stain for one to two hours :—Distilled water, 100 cubic centimetres ; saturated alcoholic solution of methylen blue, 20 cubic centimetres ; formic acid, 10 minims. Wherever it is possible, however, Ehrlich's original method is recommended as being most rapid, most simple, and most satisfactory. By this method of staining, tubercle-bacilli and leprosy bacilli remain red when the fuchsin solution is employed. Psorospermiae and the outer coat of some parasites also retain the red colour. Lichtheim has further stated that a micrococcus is frequently found in the fæces, which behaves in a similar manner to the tubercle-bacillus.

THE COMPARATIVE PHYSIOLOGY OF MENSTRUATION.

BY ALFRED WILTSHIRE, M.D., F.R.C.P. LOND.

(Continued from p. 264.)

The influence of domestication upon the fertility of animals amenable thereto is most instructive. The total productiveness of most of them is enormously increased thereby. The continuous and regular supply of food, the artificial warmth, selection, care, and culture bestowed upon them, greatly enhance their productiveness. Puberty not only arrives earlier, but a sustained power of reproduction is acquired ; more offspring can be bred, and these again breed earlier. The manifestations of "heat," therefore, instead of being confined to seasonal appearances, are much more frequently renewed, resembling, be it noted, those of women ; and where celibacy is imposed upon the female, as it is for commercial purposes in the case of cows, for example, by segregation from the male, the periods of heat may be observed to recur with remarkable regularity—in cows, usually every three weeks. Domesticity, then, increases the fertility of domesticable creatures ; while seclusion from the male, either for economic purposes or through captivity, permits the repeated exhibition in the female of the phenomena of the rut or heat, whatever they may be.

Prolonged civilisation has done for women what domestication has done for the lower animals ; it has augmented their power of reproduction, made them more prolific, and rendered more frequent the manifestations of that aptitude, hence the sustained repetitions of œstro-menstruation. Darwin (*Descent of Man*, p. 45) has remarked that savages appear to be less prolific than civilised people. Bischoff has truly said :—"If women menstruated only once or twice a year, it would long since have been remarked that such was the only time when conception was possible ; menstruation would long ago have been recognised as perfectly analogous to 'the heat' in animals, even though the most essential element of it, the maturation of ova, had not been discovered." He also says : "The ova form and become mature, and are extruded from the maternal organism, usually at fixed periods, having regularly recurring intervals." This is the period of "heat" in animals and "menstruation" in human females. The analogies existing between menstruation in women and œstruation in the lower animals may be shown. In both there is special aptitude for conception at or near these times, though women are more highly endowed, inasmuch as they may conceive at epochs somewhat remote from their "period." The lower females will rarely permit intercourse except at periods of heat, which in ruminants, at any rate, are of brief duration ; indeed, the males seldom attempt it during the intervals. This is unlike the practice of human beings. In both, it has been shown the germ-cells are then ready for impregnation ; though here again woman enjoys the advantage implied above, in that ovules may be produced at times other than those of the "heat," that, however, being admittedly the usual and ordinary epoch for their ripening and dehiscence. Propinquity to the male, without access to him, is known to hasten ovulation in birds ; and in the human female repeated sexual indulgence is known to stimulate the rupture, if no more, of Graafian follicles. One should not lose sight, however, of the superior evolution of the sexual system in the higher creatures, for this may not be without influence upon the process. It can hardly be maintained that sustained ovulation is the exclusive appanage of the higher mammals, but there can be little doubt that the organic superiority of the highest enables them to co-ordinate more readily the advantages their endowments and environments may chance to afford : their sexual superiority is correlated with their mental, as with their general organic superiority.

Bischoff says :—"In them (animals), the period of 'heat' either occurs so seldom, once or twice a year, or when repeated more frequently, as in the cow, the sheep, the pig, etc., it is so interfered with by ordinary circumstances, such as our economical arrangements and the like, that the animals are either immediately impregnated, or the recurrence of maturation of ova is obstructed and stopped by the secretion of milk. That analogy, otherwise so striking, with one of our commonest domestic animals, the cow, should have remained for the most part unnoticed, is no doubt to be attributed to some of the above circumstances."

To the question, should it be asked : Why do not the females of the lower animals menstruate with the persistent regularity with which the human female menstruates? the reply made be made that, under like advantages of food, warmth, and similar advantageous environments, they do so to a very large extent; but that, owing to their more constant exposure to conception, the catamenial function is liable to be suppressed by its natural successor, pregnancy. The regular periodical "horsing" of mares is often observed, especially when they are fairly well-fed and not over-worked; while cows, bitches, and other domesticated animals, exhibit regularly renewed signs of sexual aptitude. If it be asked : Do these signs resemble the sanguineous catamenial discharges of women? the reply is unequivocally affirmative; it is supported by reflection, and is confirmed by observation.

My researches have led me to certain conclusions, one of which, fundamentally important, may here be thus tentatively formulated. The sanguineous character of the œstro-menstrual flux bears generally some relation to the degree of evolution of the sexual system in mammalia. Ordinarily, it appears to be proportional with the development of the generative organs, and to be subordinate to their evolution; the chief evidence of evolution consisting in the lateral integration or fusion of the generative canals (Müller's ducts), accompanied by aggregation of the ovarian elements. But it should never be forgotten that intimately correlated therewith are other evolutionary facts, *e.g.*, the higher organisation of the nervous, vascular, and glandular systems, upon the special activity or development of which variation may depend.

Accordingly, in the highest mammals, man and the quadrumana, wherein the uterus is a compact organ* (in the former, traces of the primitive duplicity being but feebly indicated), we find the catamenial flux to consist of almost pure blood. Even in the human species there are individual, often considerable, variations in the sanguineousness of the flux, in part obviously dependent upon the conditions of the blood—some women having only a feebly stained, or even a colourless flow, constituting the "menstruatio alba" of old authors.

In certain of the higher monkeys, in consonance with the law of evolutions already propounded, the catamenial flux is perfect sanguineous, and recurs with regularity every three or four weeks. In cows it is also decidedly, though probably less intensely, sanguineous, and recurs with strict regularity every three weeks. Of the accuracy of this observation, as it applies to highly-bred cattle, I am assured by a most competent and able observer, Mr. Simpson, of Wray Park, Reigate, at whose model farm is a large herd of beautiful Alderney or Jersey cattle of his own breeding; and Mr. Simpson has not only for upwards of fifteen years been a breeder on a large scale (having a herd varying between 70 and 100 animals), but he brings cultivated powers of observation to bear upon the phenomena presented, having in his earlier years studied medicine.

More or less sanguineous (sanguineo-mucous) catamenial fluxes have also been observed to recur periodically in mares, asses, ewes, sows, bitches,

* Gegenbaur says (*Elem. Comp. Anat.*, p. 616) :—"In the Simiæ, as in Man, there is a single uterus, which received an oviduct on each side."

cats, and so on. Wild animals, kept in captivity, often sustain injury in their capacity for reproduction, but not always ; and when they do manifest sexual aptitude, it has been observed to obey the law of periodicity (hebdomadal) already adduced. I am indebted to Mr. Bartlett, the able superintendent of the Zoological Gardens, for valuable information on this point. For instance, the hippopotamus, which has borne three young ones in the Gardens, exhibits monthly sexual excitement ; the vulvar orifice swelling and weeping. Whether blood escapes is not certainly known, as the creatures frequent the water much at these times, copulation taking place in the water. Elephants, both male and female, become much excited during the breeding season ; while some animals, at other times wild, become tame and quiet.

Observation shows that generally the discharge becomes less and less sanguineous as we go lower in the scale of organisation, so that, in the lowest creatures, we see only a mucous exudation, perhaps but slightly, if at all, tinged with blood. In all presenting a vulvar aperture, there is swelling with turgescence of the genital orifice ; but the exhalation of blood appears to be mostly, if not entirely, in relation with and subordination to the evolution of the sexual organs, so that, in the lowest forms, it may be represented merely by an odorous mucous flux. Probably, undiscovered exceptions to this law exist. It is believed that their discovery would not invalidate the general truth of the law propounded ; they would merely illustrate what is well known in biological inquiries, that variations and divergencies for adaptive purposes are not uncommon in correlation with certain conditions of environment—nutritional, climatic, or other. Pouchet recognised some such relation as is indicated above, but he seems to have thought that it also bore relation to the size of mammals ; and he regarded a copious intestiform uterus, with its extensive mucous membrane, as accommodating a larger volume of blood than the thicker small uterus of woman and the *Simiæ* was capable of doing. He says : “The quantity of blood emitted by the animal is absolutely related to the structure of its uterus, but the afflux of the fluid towards the genital organ is always proportionate to the size of mammals. The species in which the genital apparatus approaches more that of woman, and which, as in monkeys, have a small and coriaceous uterus, are manifestly regular, and show an abundant external flow of blood. We have seen that the assertions of Buffon, Cuvier, Burdach, G. Sainte-Hilaire, Rengger, Ehrenberg, Raciborski, and Isidore Sainte-Hilaire, leave no doubt in this respect ;” and again, “Thus, then, menstruation in the sow is a demonstrated fact. As in human species, there is an emission of blood ; but if this is not abundant, it is because this fluid is found in great part poured in the immense extent of the internal generative apparatus.”

The generalisation I have independently worked out, and now venture to propound, differs from Pouchet's, in that I regard the relation of the catamenial function, in respect to its sanguineousness, to the generative organs as being, in the main, one of subordination to the extent of their evolution, not merely to the accidents of shape of the uterus or size of the creature. Aberrations in, exceptions to, or divergencies from the law, may in time be discovered, or may declare themselves in the course of inquiry ; and the explanation of exceptions, apparent or real, may be found in, or be ascribable to, such causes as difference in the plasticity or adaptability of animals to their environment ; in the tendencies of some species to organic degradation, or to other factors as yet unknown ; but with the allowances scientific caution would prescribe, it is believed that the general accuracy of the evolutionary law, now provisionally advanced, will become established as observations are extended. Seeing the extreme difficulty of instituting adequate personal inquiry into the phenomena as they are presented in all animals by one individual, it is to be hoped that all who enjoy exceptional

opportunities for observation, will be so good as to make and record them, so that, in process of time, an accurate record of facts may be garnered.

With ample material furnishing reliable data, further conclusions may become warrantable, and correlations be discovered that are now unsuspected. For example, the flux may be found to bear some relation to the evolutionary or hæmoglobin value of the red cells. Probably, diet influences it also ; and, possibly, it may bear some relation to the number of ova, for in the multiparous carnivora the manifestations of heat, including the flux, are more sustained than in the uniparous ruminant.

In illustration of my position, the following passages, borrowed from Gegenbaur, may be usefully quoted :—

“Two completely separated uteri open into a vagina in many Rodentia (*Lepus*, *Sciurus*, *Hydrochærus*, etc.), and in *Orycteropus*. In other Rodentia, the two uteri are only united for a short distance into a common opening into the vagina (*e.g.*, *Cavia*, *Cœlogenys*, *Mus*). This leads to the arrangements seen in the uterus of the Insectivora, Carnivora, Cetacea, and Ungulata, where a single uterus is continued into two separate cornua, which are continued into the oviducts. When the common portion of the uterus is elongated, the cornua are shortened ; this is the case in the Chiroptera and Prosimiæ ; in the Simiæ, as in Man, there is a single uterus (C), which receives an oviduct on either side. The cornua of the uterus, and the common uterus itself, vary very greatly in length ; so, too, does the vagina, the mucous membrane of which may be variously modified. In many Rodents (*Logotomus*), a certain portion retains its original double nature. Its opening into the urogenital sinus is sometimes distinguished by a temporary fold of mucous membrane, which is known as the hymen. This has been observed in the Ruminantia, Carnivora, etc. ; but it is in the Simiæ only that it has the same relations as in man. The primitive Müllerian duct, which only served for the passage of the generative products, is, therefore, differentiated into three parts, owing to the great physiological changes that happen to it ; and of these parts, the first, or Fallopian tube, alone retains its primitive relations.

“The ovaries, which are generally small, vary greatly according to the relation and obtains between the follicles and the stroma of the ovary. In a large number of mammals they are racemose in form. They seldom retain their primitive position, and generally travel towards the pelvic basin, or, with their oviducts, are completely enclosed in it. They are always in close relation to the oviduct, or, rather, to its infundibular cœlomic mouth, for a process of the margin of the ostium extends to the ovary. The mesenteric folds (*ligamenta uteri lata*), which support the ovaries and oviducts, and unfrequently unite with the pouch that encloses the ovary to form the mouth of the oviduct (as in the carnivora).”

We may now examine the evidence furnished by observation upon the females of the lower animals at their periods of heat. It will be apparent that there is singular accord in the statements of competent observers upon the phenomena as they present themselves in the various animals ; and that, in all the creatures subjected to inquiry, some more or less conspicuous flux or exudation occurs ; the majority exhibiting manifestations partaking in varying degrees of a sanguineous character. .

In observing domesticated animals, and still more those in a state of captivity, the same allowances for individual variations should be made as would be made in regard of women ; in whom we find laborious life and hard fare to some extent diminish the flow ; while ease, luxury, and plenty (not excess) promote it. Again, racial peculiarities, with the lower animals as with the human species, may unquestionably affect the character of the flow.

Very slight changes in normal conditions affect the capacity for reproduc-

tion in all animals ; hence, many creatures fail to breed in captivity, while, on the other hand, domesticable creatures have augmented powers. Mr. Darwin's statements to this effect are numerous and weighty. In "Animals and Plants under Domestication," vol. ii., pp. 143-4, he says :—"It would appear that any change in the habits of life, whatever these habits may be, if great enough, tends to affect in an inexplicable manner the powers of reproduction. The result depends more on the constitution of the species than on the nature of the change ; for certain whole groups are affected more than others ; but exceptions always occur, for some species in the most fertile groups refuse to breed, and some in the most sterile groups breed freely. . . . Changed conditions of life have an especial power of acting injuriously on the reproductive system. The whole case is quite peculiar, for these organs, though not diseased, are thus rendered incapable of performing their proper functions, or perform them imperfectly." *Ibid.*, p. 256 :—"We know that certain groups of organic beings, but with exceptions in each group, have their reproductive systems much more easily affected by changed conditions than other groups—for instance, carnivorous birds more readily than carnivorous mammals, and parrots more readily than pigeons ; and this fact harmonises with the apparently capricious manner and degree in which various groups of animals and plants vary under domestication."

(To be continued.)

SWINE PLAGUE.

IN a letter recently addressed by M. Pasteur to the Paris Academy of Sciences, dated from Bolleue (Vaucluse), some important information is given by that eminent investigator regarding the very disastrous disease of pigs known to our French colleagues as the *Rouget*, or *Mal Rouge des porcs*, and in this country as *Swine Plague or Fever*.

It was estimated that more than 20,000 pigs had died from the disease in 1882 in the departments in the Valley of the Rhone. Pasteur was sent thither by the French Government to investigate the nature of the malady, being accompanied by one of his co-workers, M. Thuillier, and the results of his researches are resumed in the following propositions :—

1. The *Mal Rouge* of pigs is produced by a special microbe, easily cultivated external to the animal body. It is so fine that it may escape very close observation, and bears the closest resemblance to the microbe of Fowl Cholera. In shape it is also like the figure 8, but finer and less visible than that of Fowl Cholera, and it differs essentially from it in its physiological properties. Without effect on fowls, it kills rabbits and sheep.

2. Inoculated in the pure state in pigs, in almost inappreciable doses, it promptly produces the disease and causes death, with all the characteristic symptoms observed in non-inoculated cases. It is particularly fatal in the white, improved breeds, which are most valued.

3. Dr. Klein, of London, published an extensive work in 1878, on the disease, which he designated Pneumo-enteritis of the pig ; but he was entirely deceived as to the nature and properties of the parasite. He described as the microbe a bacillus with spores, even more voluminous than that of Anthrax. Very different from the true microbe of *Rouget*, Dr. Klein's *bacillus* had, besides, no relation to the etiology of this disease.

4. After assuring ourselves by direct experiments that the malady did not recur, we afterwards succeeded in inoculating it in a benignant form, and the animal was then refractory to the fatal form.

5. Although we consider that more experiments are still necessary, we are confident that, commencing with next spring (1883), inoculation with the attenuated virulent microbe of the disease will be the safeguard of the pig-sties.

PROPOSED VETERINARY COLLEGE FOR IRELAND.

DR. LYONS is actively moving in the matter of a veterinary college for Ireland, and obtaining considerable encouragement. The medical faculty of the Catholic University had already passed a resolution in favour of the proposed college some time ago, and the Doctor, having written to the Council of the Royal College of Surgeons of Ireland, that body adopted the following resolution on April 9th :—"That the letter of Dr. Lyons, M.P., be placed in the minutes, and that he be informed that this Council highly approve of the project of establishing a veterinary college in this city ; that they will be prepared to give him any support in their power in trying to induce the Government to carry out a project so likely to prove of such value to the country at large."

As we have already expressed our opinion as to this project, we need not again refer to it, except to repeat that the profession cannot have much objection to one, or even many teaching schools being established in Ireland—though the competition between schools is not always advantageous to the general interests ; but a licensing school would be most objectionable in every respect, and (in Ireland especially) would prove most damaging to the progress of veterinary medicine in these kingdoms. But as the Government is now determined, in the Medical Acts Amendment Bill, to have only one licensing body for the medical profession, it is not likely to sanction two for such a small profession as ours.

THE DEGREE OF DOCTOR OF LAWS.

THE members of the veterinary profession will be pleased to learn that, by resolution of the Senatus Academicus of the University of Glasgow, his native city, the degree of LL.D. was conferred on Mr. George Fleming, Army Veterinary Inspector, at the graduation ceremony there on April 27th, in recognition of the services he has rendered to medical and veterinary science, and particularly to comparative pathology and sanitary science. We believe this is the first time that a university has acknowledged the claims of veterinary science to the highest honour the senate can confer.

THE FLEMING TESTIMONIAL.

THE committee beg to announce that the presentation of this testimonial will take place at the annual meeting of the Royal College of Veterinary Surgeons, at Freemasons' Hall, on the 7th inst.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF COUNCIL, HELD APRIL 2ND, 1883.

G. FLEMING, Esq., President, in the chair.

Present—Professors Axe, Robertson, and Simonds ; Messrs. Anderson, Batt, Broughton, Cartledge, Cartwright, Collins, Cox, Dray, Harpley, Perrins, Santy, Simcocks, Simpson, Taylor, Whittle, Woods, Wragg, Sir Frederick Fitzwygram, and the Secretary.

The SECRETARY read the notice convening the meeting.

The minutes of the previous meeting were taken as read and confirmed.

It was agreed that Professor Walley's motion should remain suspended.

The SECRETARY said he had received letters from Professor Walley, Mr. Reynolds, and Mr. Blakeway, regretting their inability to attend the meeting.

The SECRETARY read a letter from the North of England Veterinary Medical Association, containing a resolution passed by that Society with regard to pupilage and the practical examination of students.

It was agreed that the letter should be recorded, and a letter of acknowledgment sent in reply.

Memorial from Scotland.

The SECRETARY read a letter from Mr. C. Cunningham on behalf of three Scottish Veterinary Medical Associations.

Mr. TAYLOR proposed that the subject should be referred to a committee at a future meeting, subsequent to the annual meeting, and that the Secretary should acknowledge the letter.

Mr. WOODS seconded the motion, which was agreed to.

The SECRETARY said that through Mr. Harpley, executor of the late Mr. William Field, the Museum had been presented with a very handsome case of horseshoes, together with some others which had taken the prize at the Exhibition of 1862. A letter had also been received from Mr. Harpley, stating that Mr. Field had left a sum of £1,000 towards the new building, provided a like sum was obtained within a year.

Mr. DRAY moved that the Council, having received intelligence of the demise of Mr. William Field with much regret, the Secretary should be instructed to forward a letter of condolence and sympathy to his family in the loss they had sustained. The name of Field was a household word among them, and although that gentleman had attained the age of seventy-nine, he (Mr. Dray) thought there was little doubt that his life would have been prolonged had not the sudden death of his son, in consequence of an accident in the hunting-field, caused such a severe shock to his mind and system.

The PRESIDENT said it was almost superfluous to add to the words of Mr. Dray. In Mr. Field the profession and public had a friend and a servant. In London his integrity in his profession had become almost a proverb. Mr. Field's donation was the first the College had ever received, and it showed his sense of the importance of their profession and College.

The motion was agreed to.

The discussion of the terms of the bequest was adjourned until the next meeting.

Diplomas were granted to Messrs. Gray, McGrath, Kilburn, and McArthur, as holders of the Highland and Agricultural Society's certificate.

The Report of the Examination for the Royal Agricultural Society Prizes.

The SECRETARY read a letter from Mr. Jenkins, the Secretary of the above Society, stating that, in consequence of the paucity of candidates for the examination, in future prizes would no longer be offered by the Royal Agricultural Society.

The PRESIDENT said he attended the meeting of the Veterinary Committee of the Royal Agricultural Society when the subject was discussed, and could not help feeling a sense of humiliation that the prizes had been so badly competed for. In the course of seven years only nineteen competitors had appeared; and he could not say a word in defence of the profession. He thought that the best thanks of the profession were due to the Royal Agricultural Society for its generous effort towards establishing a better practical knowledge of cattle pathology amongst the younger members of the

profession. No one could possibly complain of the course the Society had adopted.

The Report of the Court of Examiners.

The SECRETARY read a list of the names of students that had been admitted at the various colleges.

The Report of the Registration Committee.

The SECRETARY read the report.

Mr. DRAY moved, and Mr. TAYLOR seconded, that the report be received.

The motion was carried.

Mr. DRAY said the amount collected by the Secretary was £4,217 17s. The gross credited account would be about £3,344 5s.

Mr. SIMCOCKS asked on what principle the Committee decided to admit some of the applicants.

The PRESIDENT said that affidavits were sent in by these men to the effect that they had been five years in continuous practice, together with certificates of moral character, and those who were not objected to by members of the profession were of course passed as eligible. There had been so much hearsay evidence against them that all protests had to be made in the form of an affidavit, oath against oath, and in every case in which that had been done the affidavit of the members of the Royal College had been taken in preference to that of the applicant. The sittings of the Committee appointed had been long and tedious, they being most anxious that justice should be done to the public and to the applicants. Although a man might have been admitted to the Register, his name could still be removed if it was afterwards found that he had made a false declaration.

Mr. CARTLEDGE said that to his own personal knowledge several members had been admitted who, he thought, ought not to have been ; but he had not chosen to take action in the matter.

Prof. SIMONDS asked whether the Secretary could inform the Council what was the total number of members of the Royal College of Veterinary Surgeons.

The SECRETARY said he thought the total number to date was about 2,600.

Mr. TAYLOR said although the number of those men that had passed for registration under the Act might appear very large, he thought, under the circumstances, the Council ought to be liberal, for those men were not veterinary surgeons, but only veterinary practitioners.

The PRESIDENT said that the only thing that registration did was to exempt them from the penalties of the Act of Parliament. He did not himself think that by the addition of those names to the Register the importance or dignity of their profession was in the slightest degree diminished.

Mr. SIMCOCKS said he wished to move an amendment to the report. He felt that the reading of the Act was that those gentlemen selected for registration should receive intimation to that effect. In his opinion they should get nothing of the sort. The fact of their not receiving their money back would be sufficient intimation. He was sure that such letters would be framed and exhibited as diplomas.

Mr. CARTLEDGE proposed that a copy of the list of existing practitioners be sent to each of those existing practitioners who were so registered. If that were done every man would find his name included in the list, but could make no improper use of it.

Mr. SIMCOCKS said he would withdraw his amendment and second Mr. Cartledge's proposition.

Mr. DRAY said he begged to move the adoption of the recommendation of the Registration Committee.

The motion as amended was put to the meeting and carried.

Mr. TAYLOR proposed, and Mr. SANTY seconded, a vote of thanks to the Registration Committee, for the very satisfactory manner in which they had fulfilled their duty.

The motion was agreed to.

Mr. WHITTLE proposed that the fees of those who had been rejected for registration should be returned, with an intimation that their claim, having been considered, was not substantiated.

Mr. TAYLOR seconded the motion, which was agreed to.

The Report of the Finance Committee.

The SECRETARY read the report of the Finance Committee.

Mr. DRAY called attention to the expense incurred by the examiners going to Scotland. He thought some action ought to be taken, that one examiner should be elected for Scotland and one for England, which perhaps might obviate the difficulty. After all expenses had been paid, they had only received a small balance from Scotland in the shape of fees.

The PRESIDENT said it had been decided by the Council that as far as possible the same examiner should examine both in England and in Scotland. After next year the examinations in England and Scotland would be only two in number ; that at once got rid of one item of expense. Many of the examiners lived in the south, therefore they had a very long way to go. The small income was due to the small number of students in Scotland, and if the number had been larger the travelling expenses would have been the same.

Mr. BROUGHTON proposed the adoption of the report of the Finance Committee.

Mr. WHITTLE seconded the motion, which was agreed to.

Cheques were ordered to be drawn.

The Report of the Committee appointed to investigate a Case of Fraud by a Member of the Royal College of Veterinary Surgeons.

The SECRETARY read the report of the Committee appointed to consider the case of Mr. Gaskin.

On the motion of Mr. TAYLOR, seconded by Mr. DRAY, the report was received.

The PRESIDENT said he was present at the meeting when the case of Mr. Gaskin was fully investigated. As far as he could judge, the Committee were not at all impressed with his truthfulness. He denied several acts of which he had been guilty until he was reminded of them from the information received. The case had excited so much attention in the public newspapers, and the frauds Mr. Gaskin had practised in the name of his profession had been so great, that the Committee felt there was no other course open to them than to make the recommendation they had done. It was a painful thing to make such a recommendation ; but the interests of the profession, no less than those of the public, required that such cases should be investigated and dealt with by the College.

Mr. DRAY moved that the report be adopted, and the name of Mr. Arthur Gaskin be removed from the Register.

Mr. TAYLOR seconded the motion, which was agreed to.

The PRESIDENT asked whether it was the wish of the Council that the names of those gentlemen removed in that way from the Register should

appear in the report and in the published reports of the proceedings. He thought that the public should be informed of the fact.

It was resolved that such a course should be adopted.

The Election of an Examiner for England and Scotland instead of Mr. Dan Gresswell.

The PRESIDENT said that during Mr. Gresswell's illness, which he was grieved to say had terminated in death, his (Mr. Gresswell's) son, who practised at Nottingham, had been appointed. It had now, therefore, become necessary to appoint a successor in his stead. In the person of Mr. Gresswell they had lost a gentleman who not only stood high in his profession in his own locality, but whose name was known throughout the country. He had been Mayor of Louth, and had been an Alderman of his native town for a number of years.

Mr. DRAY moved "That the Secretary be instructed to send a letter of condolence and sympathy to his son and family for the loss they have sustained."

Mr. TAYLOR seconded the motion, which was agreed to.

Messrs. C. Gresswell, Archibald Robinson, Alexander Robinson, Borthwick, and McGillivray were nominated.

The ballot was then taken, and Mr. Archibald Robinson was declared elected in the place of Mr. Dan Gresswell.

The SECRETARY then read the Obituary List.

SPECIAL MEETING.

The Consideration of the Annual Report.

Mr. TAYLOR proposed that the President, the Treasurer, and the Secretary be appointed as the Committee to draw up the Annual Report.

Mr. WHITTLE seconded the proposition, which was carried.

The Annual Meeting.

The PRESIDENT said that the annual meeting would be held on Monday, the 7th of May. The question to decide was whether it should be held in London, Edinburgh, or in Dublin, either of those places being permissive.

Mr. SIMCOCKS moved "That the annual meeting be held in Dublin." In the interests of the Royal College of Veterinary Surgeons he thought that, as an attempt had been made to establish a Licensing College in Dublin, it would be as well to hold their annual meeting in that city, in order to disabuse the mind of the public of such an idea. The novelty would be so great that he was sure three-fourths of the Irish members would attend; and a great many of their Lancashire friends had promised to attend.

Mr. TAYLOR said he was sure a visit to Dublin would do the members a great deal of good; and as the opportunity would not occur again for three years, he had great pleasure in seconding the proposition.

Genl. Sir FREDK. FITZWYGRAM supported the proposition.

The PRESIDENT said that there were one or two objections to such a course being adopted. In the first place, their experience in Scotland with regard to the attendance of members was not a very happy one. It had been proposed this year to hold a meeting of the British Veterinary Association in London, and the proposition had been so widely and favourably received that he thought it would collapse if a meeting of the Royal College were held in Dublin. It would be a disappointment to about one-half of those members of the profession who had signified their intention of joining

that Association. He thought that a little longer notice should be given to their Irish colleagues before a meeting in Dublin was decided upon.

The SECRETARY read clause II in the Supplemental Charter, relating to the question, and the Council decided that the annual meeting could not legally be held out of London.

Mr. SIMCOCKS withdrew his motion, and it was agreed that the annual meeting should be held at the Freemasons' Tavern.

The Annual Dinner.

It was agreed that the annual dinner should be held at the Freemasons' Tavern.

The TREASURER said he had received from several members letters complaining of the charge for the dinner last year. The cost had been about 30s. per head.

The PRESIDENT proposed that the number of guests and the cost of the dinner should be left in the hands of a Dinner Committee.

A Dinner Committee, consisting of the President, Messrs. Axe, Batt, and Wragg, was accordingly appointed, and it was agreed that the cost should not exceed 25s. per head.

The following Scrutineers were appointed :—Messrs. A. Broad, George Broad, E. Batt, Sheather, Peacock, Charles, Hancock, Shave, P. Spooner, Pottinger, Talbot, junr., and Mr. Gibbings.

The PRESIDENT said that the Register would be shortly ready to go to the printer, and it was a question for the Council to decide how many copies should be printed, and whether it would not save the Secretary much time and trouble if the sale of the Register were entrusted to some bookseller in London.

It was decided that the finding of a suitable publisher should be left in the hands of the President.

Professor SIMONDS suggested that the Secretary should be instructed to send advertisements to the journals of the names of the publishers of the Register.

Mr. WRAGG asked whether the ballot-papers should be kept open for an hour after the meeting. There was an intimation to that effect on the paper. Last year it was not done.

Professor ROBERTSON asked if the name of the voter was on the ballot-paper ; if so, the ballot-paper was no ballot-paper at all, because whoever received the paper then knew who was voting for a particular person. He thought many of the members had a decided objection to voting in that fashion.

Mr. WHITTLE proposed that the name be removed from the outside of the envelope.

Mr. TAYLOR seconded the motion, which was agreed to.

Mr. COX called attention to a letter that had appeared in the VETERINARY JOURNAL for the current month, written by Professor Walley, complaining of the way in which the examinations were carried on, and stating that the examiners expected answers that would often puzzle their elders, and made no allowance for the nervousness and anxiety of the student. He thought such remarks appearing in a public journal were extremely indiscreet, and tended to disturb the equilibrium of the students coming before the examiners, they thinking that they would have an unfair examination. Invariably, if the teachers had not brought their students up to the requisite standard, the examinations were looked to to find it out. The Colleges had frequently complimented the examiners on picking out the best men, and the students themselves had expressed their acknowledgments of the kindness they had

received when undergoing their examinations. He did not think that anything exacting had ever been exercised towards the students. He thought it was due to the Council that he should call their attention to the matter, and that it was also due to the examiners that they should be supported by the Council in carrying out their duty.

Professor ROBERTSON said he was thoroughly satisfied that the students received a just and fair examination ; at the same time he thought that the examinations of the present day were somewhat harder than they were fifteen or twenty years ago. They all knew that examinations were only approximative, and sometimes it happened that a good man made a bad appearance, for the want of ability to bring out knowledge that he really possessed. He felt sure that the Council, as it had done before, would most heartily support the Board of Examiners, and give them all the consideration they required.

The PRESIDENT said he thought Mr. Cox was perfectly justified in bringing the matter before the Council. The position held by the examiners was one of great responsibility : upon their shoulders was placed a trust which he was sure they discharged to the very utmost of their ability. He was sorry Professor Walley was not present, because he never liked to pass remarks about absent people. He considered the letter referred to calculated to convey an altogether false impression to the minds of the students as to the manner in which their examinations were conducted. There was sometimes a feeling engendered in Edinburgh that students were not fairly examined. All the schools except one were well represented on the Council ; and if anything was amiss in the examinations he was certain the Council would entertain a complaint and thoroughly investigate it.

Mr. DRAY proposed a hearty vote of thanks to the President.

Mr. WHITTLE seconded the motion, which was unanimously agreed to.

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of the above Association was held in the Medical Institute, Hope Street, Liverpool, on Tuesday, the 13th Feb.

There were present, the President, (Mr. Reynolds) in the Chair, Messrs. Morgan, Elam, Kitchen, Moore, Butters, Brizell, Kenny, and the Secretary, Liverpool ; Messrs. P. Taylor, W. A. Taylor, T. Taylor, Greaves, Faulkner, Locke and Lawson, Manchester ; Mr. Woods, Wigan ; Mr. Whittle, Worsley ; Messrs. Edwards and Storrar, Chester ; Mr. Pilkington, Woolton ; Mr. Stone, Little Houlton ; Mr. Barron, Sutton ; and Mr. Dacre, Altrincham.

Letters of apology intimating their inability to attend were received from Professor Williams, Messrs. Darwell, Wolstenholme, W. Leather, A. Leather, Bell, Roberts, and Lewis.

The minutes of the previous meeting were read and confirmed.

It was proposed by Mr. Geo. Morgan, seconded by Mr. Greaves, and unanimously carried, that Professor Robertson be nominated and supported by this Association for one of the forthcoming vacancies in the Council of the Royal College of Veterinary Surgeons, and that a committee be appointed to co-operate with the Lancashire, Irish Central, Scottish, Metropolitan, and Yorkshire Veterinary Medical Societies, to assist in returning their nominations as members of Council.

Messrs. Reynolds, Moore, Kitchen, and Bain were the members of committee appointed to co-operate with the above societies.

Mr. GREAVES moved "That this Association gives its hearty support to the National Veterinary Medical Association." He considered the Congress would be sure to do a deal of good, and stimulate science. A report would

be issued after each meeting, which would prove of incalculable benefit by the essays and other matter it would contain.

Mr. WHITTLE seconded Mr. Greaves's motion.

Mr. MORGAN could not see his way clear to support Mr. Greaves's motion, and moved an amendment, "That the Liverpool Veterinary Medical Association remain neutral."

Mr. T. TAYLOR seconded Mr. Morgan.

After considerable discussion, in which the President, Mr. Taylor, Mr. Moore, and others took part, it was resolved that this Association remain neutral.

Mr. ELAM nominated Mr. Ross, Liverpool, for election at next meeting.

Mr. FAULKNER proposed Mr. J. Brizell and Mr. T. Butters, Liverpool, and Mr. Lloyd, Denbigh, as members of the Association.

Seconded by Mr. KITCHEN, and carried unanimously.

The PRESIDENT then read his inaugural address :—

Gentlemen,—I ought to be the last to question your wisdom in electing me a second time to be the President of this Association, but I cannot refrain from an expression of sincere regret that neither of the gentlemen, the first and second of your choice, would consent to accept the honour. Both have merited to the full the honourable position it was your wish to confer, and either of them would have occupied it with individual distinction, to the advantage of the Association, and to the dignity of the whole profession. When your third choice fell upon me, I was impelled by several reasons to accept this chair. Amongst them a sense of duty born of gratitude for the numerous proofs I have received of your appreciation of my services—for to the members of this Association is due my election to the Council of the Royal College of Veterinary Surgeons ; a desire to do all I can for the advancement of the profession ; a high estimate of the honour conferred ; and, lastly, a wish to efface from my memory the recollection of some painful incidents which the older members will remember, disturbed the harmony of our meetings when, ten years ago, I occupied a similar position. The discussions which then arose upon alleged breaches of professional etiquette were commenced by rancorous attacks, provoking recrimination equally virulent, and left a dark shadow upon a period which would otherwise have lived in my memory amongst its happiest reminiscences.

The themes of presidential addresses have usually been drawn from past histories and present occurrences ; and whilst I am constrained to briefly touch upon circumstances connected with the immediate past, I shall in the main occupy my short time in some anticipations for the future, and review very shortly some of the influences which I believe are in operation to promote or retard the advancement of the veterinary profession.

Only ten years ago, the medical world was content to recognise and to classify all zymotic diseases as groups of effects ; of their precise causes little or nothing was definitely known. And no longer than three years since the germ theory of disease was spoken of as a vague and mysterious influence. But as research into causation became more minute and systematic, a mass of evidence accumulated which has led up to the identification of whole genera of organisms that are now believed to play the most important part in the production and dissemination of destructive maladies. More recent experiments have shown that some of these minute organisms are capable not only of being identified as the essentials of certain diseases, but that they can be isolated from the body of an infected animal, made to multiply, and by processes of artificial cultivation, their deleterious influence may be modified, weakened, or destroyed.

Under ordinary conditions, inoculation with an infinitesimal quantity of

blood or fluid taken from an animal suffering from specific disease—such as Rinderpest, Splenic Fever in cattle, Fowl Cholera in poultry, Small-pox in sheep, Glanders in the horse, and Rabies generally, will in the natural course of events produce death in perhaps eighty per cent. of animals inoculated ; but the distinguished French chemist, Pasteur (whose name will be immortalised for his discoveries in this line of research), has experimentally demonstrated that by processes of artificial cultivation, the potency of the germs of certain of these infective fevers can be weakened to varying degrees of virulence ; that is to say, by altering the methods of culture, or by arresting it at different stages, a fluid may be elaborated capable, when inoculated, of causing fatal results in 60, 40, 20, or 5 per cent ; and, moreover, that by allowing the ripening to proceed further, so great a degree of alteration can be secured, that the germ-bearing fluid, when introduced into a healthy system, produces no symptom of affinity with those of the original disease, as usually evolved.

Most persons are aware that just as successful vaccination is a protection against Small-pox, so does one attack of certain other infective diseases render the system refractory to a second invasion of the same kind, and that under such conditions exposure to even powerful sources of infection is unattended with positive results. M. Pasteur discovered that precisely the same state of things followed the experiments, and that healthy animals which had been inoculated with attenuated virus were protected from a second attack, whether the final source of contagion was due to cohabitation with diseased animals, or to the direct introduction of fluids of the most powerful virulence. This important and most valuable discovery is the parent of what M. Pasteur designates, not very aptly I think, *Protective vaccination*, an operation, moreover, which is probably destined to confer the most precious benefits upon mankind, and also on domesticated animals ; it is likely to revolutionise the practice of physic and conservative sanitation ; for if the hold which science appears to have obtained over the minute creations—the essential accompaniments, if not the factors of contagion—proves to be permanent, there never was a time in the history of medicine when diseases of the most appalling kinds were so near being brought under the control of physicians—human and veterinary. Already the germs of Fowl Cholera, Splenic Fever, Sheep-pox, and Swine Typhoid have been not only cultivated to safe attenuation, but so used as “vaccination” agents that they have been found to confer upon inoculated subjects an immunity from subsequent attacks. At the present time, the virus of contagious Pleuro-Pneumonia is very much experimented with, the results as yet indeterminate are such as to permit the indulgence of a hope that in this case, also, science will prove triumphant. Within the next decade it is far from improbable that scientists will be able to identify, and by culture to enfeeble, the “Contagia Viva” of Glanders, Rinderpest, Rabies, and many other maladies which in their natural unmodified conditions are so fatally malignant. It will then come within the sphere of every-day veterinary surgeons to put to practical use the results of these scientific researches.

It would not be right to pass from this subject without congratulating the profession, and especially this section of it, who at our November meeting had the opportunity of hearing a very instructive lecture by Professor Williams upon the probable etiology of Louping-ill—a disease which annually causes great losses to the northern sheep-farmers. It is perhaps premature to speak positively upon the stability of the professor’s deductions ; yet the lines of argument he laid down could be readily followed, and his facts carried such a feeling of conviction that it is not too much to hope that in this kingdom we have at least one veterinary surgeon whose researches compare favourably with other followers of the eminent M. Pasteur.

In a brief review of the aspect of veterinary affairs political, I am sure you will accord to me your indulgence for omitting any especial reference to the recently obtained Veterinary Surgeons Act. The time for criticism upon the probable results of its operation has not arrived, nor is this chair the proper place for the critic to occupy ; in due course the subject will doubtless receive the attention its importance deserves.

The education of the youthful veterinary surgeon has occupied the minds of all interested in the welfare of the profession for a number of years ; but the progress to a satisfactory solution of an admittedly difficult problem does not appear to have been at all commensurate with the amount of labour and thought bestowed upon it. It is not that the periods of study have not been prolonged ; it is not that reforms in the modes of examination have not been instituted ; nor yet that means have not been adopted to insure the possession of at least a moderate education by the graduate on his admission to the teaching schools. The College professors, the students, the examiners, and the Council have each in turn been blamed for what I am afraid is more a fact than a fear, that a considerable percentage of students at the time their educational careers are supposed to be completed, and they are entrusted with a diploma, are not what that diploma certifies them to be, "Fully qualified to practise the art and science of Veterinary Surgery and Medicine." Of course, it is not to be expected that every one who chooses the life of a veterinary surgeon can be successful ; the routine of our profession, as seen from the outside, possesses many attractions to young men, some of whom have no real aptitude for the work they are allured to adopt, and afterwards discover to their cost that the bent of their inclination lies in another direction. It is not in the power of education to develop that which has no existence ; but where personal fitness does exist, the man will assert himself in spite of opposing circumstances. In no case, however, is it to be expected that a young man of twenty or twenty-one years of age can by any possibility become proficient in the *practice* of a profession which, for complete fulfilment, requires, perhaps more than any other, a wide range of observation and extended experience ; and I am of opinion that so long as men of this age can obtain a diploma, it will be necessary for them to mature their practical knowledge by acting as assistants or improvers to established practitioners, for periods which will vary according to individual receptivity. As you are aware the Council of the R.C.V.S., at the last quarterly meeting, decided by a majority to obtain power by supplementary charter to enforce compulsory pupilage, an effort I presume intended to remove in some degree culpable negligence from the Council or its examiners, to the student ; but it seems to me that such an attempt to shift responsibility is about as logical as is the reasoning of an ostrich, which, in time of danger, hides its head in a sandheap, and believes itself secure. I am one of the last to assert that practical proficiency can be accomplished without *prolonged* service with a practitioner, but I hold an equally strong opinion, that the desired object may be attained by the adoption of means which will respect the feelings of the students by the avoidance of compulsion. As a nation we have a natural antipathy to coercion, but are ever willing to conform to necessary requirements ; and I believe that when the system of final examination has been rendered of such a character that no graduate will be *able* to obtain his diploma who has not really seen several years' practice perfunctorily, but who during that time has been taught how to apply scientific knowledge to the curative treatment of sick or lame animals. Under such conditions of examination, an apprenticeship with a *competent* practitioner will become an absolute necessity, the college professors will be compelled to teach their pupils how to rightly estimate the importance of their anatomical, physiological, and chemical studies as means to the end and aim of perfecting their pathological

knowledge, and the student will find it essential to apply his theoretical attainments to practical and every-day work. The minute and exhaustive examinations upon general subjects will probably have to be written, and the practical one conducted in the sick-box or cow-shed *largely extended*, and made to comprise, concurrently with pathology, those allied branches of study without which pathology is an empty name. The examiners ought to be taken from the ranks of those who have not only practised with science, but also to personal profit.

The accomplishment of such results in their entirety is beset with very great difficulties, and, as we have seen, important changes of system in education and in examination will be involved ; its achievement can only be gradual, and may be very slow. My inexperience in teaching, as well as in examining, I candidly admit, no doubt discounts the value of my opinion ; nevertheless, I venture to predict a fulfilment of the object we are all striving to attain in the near future, and in the meantime I would most strongly urge the profession not to be down in front of the difficulties which appear to obstruct its consummation ; for surely no effort is too great, no expense too weighty, which may promote the removal of the reproach that the diploma of our College is sometimes obtained by men who are below the proper standard of proficiency in the practical details of their calling.

I should like to say a few words upon professional terms. In all branches of science there is a growing tendency to use words of many syllables derived from the Greek and Latin languages, and some months ago there appeared an article in the VETERINARY JOURNAL, advocating the discontinuance of calling common diseases by commonly understood names. I find no fault with the employment of scientific phraseology amongst scientists, nay, I agree that the nomenclature of animal ailments for the use of veterinary surgeons requires revision, and I admit that the dead-language derivatives are, as a rule, euphonious, and to the educated ear expressive ; but called upon as veterinary surgeons are, day by day, to express to imperfectly educated persons what they have a right to know respecting the condition of their property under treatment, I venture to plead for the retention of those Saxon or old English words, which convey a plain meaning in easily understood terms, and whose very antiquity ought to command some respect. In no place should language be more simple and ungarnished with technicalities than in the witness box ; attempts at high-flown verbosity sometimes there practised with a view of creating an impression of the speaker's importance or learning upon a bench of magistrates or a jury, not only as a rule fail in their objects, but may seriously imperil the interests of a client, or tend to defeat the ends of justice. I am a believer in the words of George Herbert :—

“ Let forraine nations of their language boast
What fine variety each tongue affords,
I like our language as our men and coast,
Who cannot dresse *it* well wants wits not words.”

It has recently been asserted that with the end of the year 1882, veterinary empiricism will cease to exist, and doubtless *if* the Veterinary Surgeons' Act can accomplish what is hoped by all of us, and believed in by the promoters and supporters of the measure, empiricism *outside the profession* will be severely checked. Time alone can determine the issue of this question, but, depend upon it, gentlemen, quackery is not to be stifled, much less destroyed, by statutory enactments ; it must be killed by the starvation process, and not until the same energy that has been expended upon the procuration of Acts of Parliament and royal charters has been devoted to perfecting the means for making young veterinary surgeons more competent, will empiri-

cism die out. The extermination of pretentious practice can only be surely accomplished through the power of that natural law which decrees the survival of the fittest, and so consummated, the result will have been obtained by a high-spirited and commendable policy.

The election of the examiners for the next term of five years has not met with universal approval. One section of the body corporate considers that the examiners in botany, chemistry, and physiology should continue to be chosen from amongst specialists in those studies attached to the medical profession; the other division, to which I have become a convert, urges that the time has arrived when examinations upon every subject may be safely and advantageously entrusted to the elect of our own ranks. I cannot but regard Professor MacFadyean's accusation, that the decision of the Council has destroyed the confidence of both teachers and students by the election of veterinary examiners, as premature and unjustifiable. Such a remark would have been better timed when the experiment had proved a failure. As it is, an assumption of incompetency has been made which, I firmly believe, will bring a measure of regret to its author. No one here will doubt but that the new examiner from the County Palatine will perform his work in a manner that will at once command the confidence of the student, the teacher, and the profession. It is also generally known that the endeavour to secure the exclusive election of veterinary examiners is not the only grievance against the Council; and whilst we may sympathise with Northern practitioners because none of their number were placed upon the Scottish section, we may be permitted to ask if the malcontents have done all they could towards the accomplishment of their desire. If the Council failed in its duty to the North contingent, that failure was due, if not entirely, at least in degree, to the ignorance of some of its members of the names of the best qualified men residing in the North. Scotch interests can be best advocated by Scotchmen, and those interests ought to be fitly represented. Not that they suffer in the hands of the present members of Council resident in Scotland; but in relation to the question at issue, it must not be forgotten that all the Scotch representatives *are teachers*, and that they, consequently, feel great diffidence in advocating the claims of examiners who would be called upon to sit in judgment upon their works as teachers. I believe it to be the general wish that each division of the kingdom should be fairly represented, not only in the Council chamber, but also upon the Board of Examiners. If our Northern colleagues cannot command amongst themselves sufficient influence to secure the election of more of their number upon the Council, they have at least had evidence that we are disposed to assist them to return good men; for Professor Robertson, who, in 1879, was a practising veterinary surgeon in Kelso, was selected by this Association, proposed by its President, and successfully supported.

There are amongst us alarmists who fear lest competition in practice will ere long reduce to a minimum our sphere of profitable employment; but surely such grounds for apprehension are unreal as shadows so long as the progress of our science is not suffered to stand still, and we are collectively imbued with a laudable ambition to keep abreast of recent discoveries. There are untold areas of virgin soil as yet untouched, and, maybe, unthought of, which of necessity can only be tilled by workers of our own especial order.

The inspection of meat, whether the product of imported or home-fed cattle, will assuredly be entrusted to us, and in anticipation of that end we act wisely when we try to determine the line of demarcation between wholesome meat of an inferior quality, and that which has been rendered unfit or unsafe to be consumed in consequence of disease, accidental conditions, or from the effects of therapeutic agents. The distressing results following the consumption of pork and hams containing trichinæ, should before this have

prompted the same vigorous action from our Government as they have determined the movement of the authorities of some Continental countries. Special legislation for the inspection of all possible sources of contamination by imported pork and swine should be enacted, and the conduct of its provisions entrusted to competent persons. The possible relations that exist between bovine Tuberculosis and one of the forms of tubercle as it affects mankind, is a matter of the highest possible importance to the community, and chiefly so in reference to the use of milk as the most important article of diet for its infant population. It is impossible to estimate what amount of infantile disease and debility, to say nothing of mortality, may not be due to the ingestion of milk from cows affected with tubercle.

The provisions of the Contagious Diseases (Animals) Act will have to be extended to meet public requirements, its area enlarged to include some diseases which do not now come within the scope of its operations, and it must deal more stringently with others that are not now completely under its direction. It cannot be doubted but Tuberculosis is on the increase, and I am possessed of presumptive evidence that the disease may be propagated, not only by actual cohabitation, but even by the occupation of a stall from which an affected animal has previously been removed.

The value of domestic poultry has of late years increased to such an extent that a study directed towards the prevention of many diseases which cause frightful mortality to fowls in domestication, grouse upon moors, and to the denizens of pheasantries, offers, if a modest, yet a lucrative field for scientific experiment. When it is remembered that for a single bird a price higher than that of an average horse has been paid, and that every year the mortality amongst highly-bred fowls causes as great pecuniary loss as on many a small sheep-farm, it cannot be questioned but that highly-aimed efforts towards the reduction of the annual loss would not only be appreciated by poultry-fanciers and game-preservers, but would prove a remunerative occupation to a specialist in this particular research. Again, if the anticipations of the benefits to be derived from protective inoculation against disease are in even a minor degree realised, an immense field of employment and usefulness will be opened up to the veterinary profession, and one which, in its relation to cattle and sheep practice, will prove far more remunerative than the curative treatment of many ailments will admit.

The highest medical authorities are now keenly alive to the fact that the study of animal plagues is one of the most valuable sources from which they can glean a knowledge of human disease, and the inauguration of chairs of comparative pathology in universities is seriously contemplated. It is not probable that distinguished positions of this kind will, except in rare instances, be filled by a veterinary surgeon. Such a reflection should not, however, cause us either anxiety or annoyance; the difference between the wide range of the comparative pathologist and that of our more limited functions is very great indeed, and whilst our science must profit by the results of his investigations, he will have to rely upon our practical knowledge and experience for corroboration of the soundness of his deductions; so shall we not be rivals of the higher profession, but rather the indispensable partners of its labours. And, lastly, as the correlation of human diseases with animal plagues is found to be more and more intimate, so will our sphere of usefulness be enlarged, and our *status* in public esteem approach nearer to that enjoyed by members of the medical profession, and our aid sought for the solution of problems of universal sanitation.

The life of our association now numbers eighteen years, and may, I think, claim to have achieved as great a measure of success as most others of its kind. Financially, its condition is not quite as satisfactory as could be desired. The treasurer's statements show that our expenditure has of late

considerably increased, and on that account it may not be desirable to call upon its funds towards the cost of an annual dinner ; but our modest minor hospitalities at each quarterly meeting will be associated with a warm and cordial welcome to our neighbours, friends, and strangers, who, in the name of the society, I now invite to give us their countenance and support upon every convenient occasion.

There are few of the luminaries of the profession who have not honoured us at one time or another with their presence, and delighted and instructed us with masterly lectures and addresses. The presence of these distinguished gentlemen has been no less welcome than their intellectual treats have been appreciated. It is my intention, during this year, to request the introduction of subjects of practical interest by members of our own society, and I hope to awaken the energies of our younger colleagues, especially to stimulate them not only to participate in the debates, but also to bring forward subjects for discussion. Modesty and a diffidence to the opinions of their seniors is highly commendable, but the juniors may take courage by the thought that all knowledge is not centered in the most experienced, and they should not forget that in a very few years the administration of affairs of this association will of necessity devolve upon them, and the sooner they become familiar with the duties the future will call upon them to fulfil, the more easy, pleasant, and profitable will those duties be. I am sure I only echo the sentiments of the older members when I say that the ideas of the younger will be received with attention and respect, and if opinions upon the soundness of their arguments differ, those differences will be dispassionately and courteously discussed, to the end that every one working for the common good will derive a substantial and permanent benefit. In the absence of demonstrative proof, it is only by debate that the true metal of science can be separated from the dross ; uniformity of opinion is as antagonistic to the perfection of a society as unity is its tower of strength. I will read to you how a most eloquent writer has expressed the difference between unity and uniformity :—

“In unity there is life, beauty, power ; in uniformity there is stagnation, deadness, monotony. There is uniformity in the darkness which enshrouds the midnight sky, where neither moon nor stars appear ; there is unity in the beautiful bow that spans the heavens, blending its prismatic tints into one resplendent arch of promise. There is uniformity in the waters of the stagnant lake over which the perfumed and vivifying breath of heaven sweeps in vain ; there is unity in the gushing fountain, flowing jocund and sparkling from the hidden rock. There is uniformity in the Polar seas, whose waves eternal winter binds as in solid granite ; there is unity in the ocean’s billows, unfettered and free, rolling in all their majesty and might. Unity and not uniformity is the primary law of God in the kingdom of nature.”

Scientific societies possess all the benefits of co-operation without its disadvantages ; the useful members do not miss the information they impart, any more than the sun shines less resplendently to-day for the glorious light he yesterday dispersed, or sweet-scented flowers become less fragrant for the odours they have exhaled to the passing breeze. Let no one here forget that he has a duty to perform, a duty peculiarly his own, one that cannot be delegated ; for as the organs of our body have distinct functions, but a reciprocal dependence, so every member of an association is in some respect or other necessary and useful to the perfection of the whole.

“What is man,
If the chief good and market of his time
Be but to sleep and feed ? A beast ! No more.
Sure, He that made us with such large
Looking before and after, gave us not discourse,
That capability and God-like reason,
To rust in us unused.”

At the termination of the address, which was greeted with applause, Mr. Morgan congratulated the President for his able and interesting address. A paper, by Mr. Kitchen, was left over till next meeting.

A vote of thanks to the chairman then terminated the meeting.

ALEX. BAIN, *Hon. Sec.*

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting of this Association was held in the County Hotel, Newcastle-on-Tyne, on Friday, 23rd February, 1883, Mr. H. Hunter, President, in the chair.

Present :—Mr. J. B. Nisbet, Fence Houses ; Messrs. G. M. Mitchell, and D. Dudgeon, Sunderland ; Mr. W. J. Mulvey, Bishop Auckland ; Mr. J. E. Peele, Durham ; Mr. D. McGregor, Bedlington ; Mr. W. Wheatley, South Shields ; Mr. W. Awde, Stockton-on-Tees ; Messrs. C. Hunting, and C. S. Hunting, South Hetton ; Mr. A. Chivas, Corbridge ; Mr. W. S. Pringle, Gateshead ; Mr. W. Grieve, Blaydon ; Messrs. C. Stephenson, A. Hunter, W. W. Smart, W. Hunter, J. H. Wilson, and the Secretary, Newcastle-on-Tyne.

Visitors, Mr. Stephenson, Sunderland ; and Mr. Blanch, Thornley.

Letters of apology for non-attendance were read from Professor Walley, Messrs. T. Foreman, M. Hedley, H. Peele, and W. G. R. A. Cox.

The SECRETARY read a letter from the Secretaries of the National Veterinary Association, asking support of this Association, and to obtain their assistance in furthering its objects, and completing its formation. He (Secretary) would be most happy to receive their subscriptions, and hoped every member present would join. Undoubtedly it was a step in the right direction, and ought to receive our unanimous support.

The minutes of the preceding meeting were taken as read.

The following gentlemen were then unanimously elected members of this Association :—Mr. G. E. Nash, Richmond, Yorks ; Mr. J. Fairbairn, Alnwick ; and Mr. W. G. R. A. Cox, Newcastle-on-Tyne.

Mr. G. M. MITCHELL nominated Mr. Blanch, of Thornley, as a member of this Association.

The following gentlemen were then unanimously elected officers of the Association for the ensuing year :—President, Mr. McGregor, Bedlington ; Vice-Presidents, Messrs. J. E. Peele, Durham, and G. Elphick, Newcastle-on-Tyne ; Secretary and Treasurer, Mr. W. W. Smart, Newcastle-on-Tyne.

Mr. C. STEPHENSON then moved the following resolution :—“That the Examiners having full power to test, in any way they think proper, both the theoretical and practical knowledge of the students, compulsory pupilage is not only unnecessary, but would be positively injurious to the best interests of the profession,” and in doing so said :—

Gentlemen,—You all know that harm is sometimes done by over-doctoring our patients. I am afraid our profession is now being over-doctored by our “Parliamentary Committee.” You also know that I honestly opposed the Veterinary Surgeons’ Bill that was recently passed by a fluke, and that in doing so I received a good deal of blame, and even abuse. That Bill being now the law of the land, it is not my intention to say anything about it, except those men who will “strain at a gnat” (the unqualified practitioner) “and swallow a camel” (the Bill with all its troubles) must suffer the consequences, namely, severe and prolonged indigestion, as shown in the troubles of the Registration Committee and the provincial societies. There are only about 1,000 applicants for registration, and they will be replaced by a constant supply of the same material under another name.

Gentlemen, since the passing of the Act I confess I have not taken so much interest in the profession as formerly ; but I cannot now resist the opportunity of opposing to the best of my slender abilities the *compulsory* pupilage clause of the proposed new charter. I am sure we all agree as to the great value of practical knowledge, and I do not think any of us will object to pupilage, but I hope and believe there are many amongst us that will honestly object to it being made compulsory. No hard and fast line should be laid down as to how a man is to obtain his practical knowledge—it cannot be done, simply because our opportunities and abilities vary. Let the wealthy pay for pupilage—but do not let us place obstacles in the way of the poor but enthusiastic lad, who looks upon the veterinary profession as the height of his worldly ambition, and who although lacking the ordinary means and opportunities will assuredly press forward and obtain information equal, perhaps superior, to his more favoured contemporary. I would ask you to bear in mind that compulsory pupilage is not required in the medical profession, their students' practical knowledge is tested at the examination, and if it can be done by them, how much easier may it be done in our profession, where there is no lack of subjects and patients. I would ask you to look back and try to remember all your old student friends, and then say if those who had been pupils stood out far ahead of their fellows, did they excel in practical knowledge, and did they make the most useful members of the profession, or is it not a fact that those who struggled against adverse circumstances, had neither time nor money to devote to pupilage, but were filled with determination and enthusiasm, eventually made not only good veterinary surgeons, but in some cases became bright stars in the profession. Many are afraid of non-qualified practitioners ; well, gentlemen, I know of no better nursery for their production than compulsory pupilage.

Gentlemen, my whole heart is in this question ; I can never forget my own early struggles. I could talk to you for a long time, but I refrain, knowing that Mr. Smart's paper is before you, but I appeal to you, nay I beseech of you, to remember the poor struggling lad ; do not put unnecessary obstacles in his way, there are quite sufficient already. I have further to appeal to you on behalf of those who from their early training, it may have been on a farm, or in a forge, or from a natural love and subsequent study of animals have gained a large amount of good solid practical knowledge, more in fact than is generally learnt by pupilage ; to these men, I say compulsory pupilage is not required and would be a positive hardship.

Tax the student's brains, but not his pockets ; there is no royal road to learning. Let the examinations be as stiff and prolonged as is thought necessary, no one can object to that, it is a sure and legitimate way of testing the student's fitness to enter the profession, which a certificate of pupilage can never be. Finally, gentlemen, do not let us lend a hand to kick down the ladder by which many of us have reached our present position. (Applause.)

Mr. D. DUDGEON had great pleasure in seconding the resolution, and said : To make pupilage compulsory would, in his opinion, be injurious to the profession, and hoped this meeting would endorse the resolution.

Mr. MULVEY hoped the present members would support the resolution. The Royal College of Veterinary Surgeons had no right to ascertain where a pupil had obtained his practical knowledge ; but, in his opinion, they ought to enforce a rigid practical examination, and there was no obstacle in the way of their doing so. We had greater facilities than the medical profession.

Mr. MITCHELL had great pleasure in supporting the resolution, and, in his opinion, compulsory pupilage would be an infringement of our rights if it were enforced, and many an able man, for want of funds, would be prevented from becoming a veterinary surgeon.

Mr. C. HUNTING agreed with all that Mr. Stephenson had said, and would support the resolution.

The PRESIDENT said the gentlemen that were bringing this question of compulsory pupilage forward had the interests of the profession at heart, and were undoubtedly trying to do their best for the good of the profession. In his opinion, if the examiners could not test the students thoroughly, pupilage ought to be enforced.

Mr. D. MCGREGOR had much pleasure in supporting the resolution, and said we ought to use every endeavour to stop compulsory pupilage.

Mr. A. HUNTER agreed with Mr. Stephenson, if the practical examination could be thoroughly carried out, and would make the examination as severe as possible.

The resolution, on being put to the meeting, was carried unanimously.

Proposed by Mr. MULVEY and seconded by Mr. A. HUNTER, that a copy of the resolution be sent to the Council of the Royal College of Veterinary Surgeons.—Carried unanimously.

After considerable discussion on the next election of members of Council of the Royal College of Veterinary Surgeons,

Mr. MULVEY proposed and Mr. CHIVAS seconded, that Mr. Clement Stephenson be nominated for election to represent this Association as a member of Council.—Carried unanimously.

It was also proposed and carried unanimously, that the Secretary write to the different Veterinary Medical Associations, asking their support and co-operation to assist in returning their nominations as members of Council.

Mr. W. W. SMART then read the following essay on “Pleuro-pneumonia Contagiosa” :—

Mr. President and Gentlemen,—The subject I bring before your notice this afternoon is one replete with interest to the veterinarian at all times, but is perhaps more particularly so just now to the members of this Association, in consequence of the recent outbreak in this district ; and when we take into consideration the fact that in former times in this country this malady has destroyed more cattle than any other disease, and when we bear in mind the enormous sums of money that are paid as compensation for animals slaughtered whilst suffering from the disease, or in consequence of having been in contact with animals so suffering, I think it behoves us to do our best to understand the nature of the malady, and to use our utmost endeavours to stamp it out, or at all events as far as possible to limit its ravages.

The disease is known technically as Pleuro-pneumonia Epizootica, Pleuro-pneumonia Zymotica, or Pleuro-pneumonia Contagiosa, and is locally known as Pleura, Lung Disease, Lig, Lung Murrain, etc. It is believed to have originated in Central Europe, and from thence it has travelled nearly all over the world ; but, perhaps, as is the case with other contagious diseases, notably Cattle-plague, it assumes a more virulent form in this country than it does in the countries where it is supposed to have first originated, for I have several times seen foreign animals—even while suffering from the disease in an acute form—in very fair condition, and not exhibiting nearly such distressing symptoms as are shown by English cattle under similar circumstances. I believe it is the general opinion that it does not originate spontaneously in these islands. We occasionally hear of cases which are supposed to be of spontaneous origin ; but probably, if the outbreak were thoroughly investigated and the career of each individual animal in the herd traced, the cause of the outbreak might be accounted for, but this strict investigation is a matter of very great difficulty, not only on account of it being frequently impossible to trace back the career of each individual

animal, but also from the fact that the owners or attendants of the animals cannot always be persuaded to speak the truth respecting their charges.

By many veterinarians the disease is thought to be transmitted by cohabitation only, but I am somewhat opposed to this theory, as I am not aware that it has yet been satisfactorily determined what that period of cohabitation must be, nor the exact distance that must exist between diseased and healthy animals, in order that the disease may be transmitted from the one to the other ; and if, as is generally supposed, the infective poison is of an extremely volatile nature, I fail to see why it cannot be conveyed by the air, or by foreign substances with which it may come in contact. And I am confirmed in this opinion by the fact, that the Order in Council passed for the suppression of this disease provided for the destruction of all dung, fodder, and litter that has been in contact with a diseased animal, and also for the burial of the carcase of an animal that has died from the disease. Surely this would be unnecessary if it had been conclusively proved that the disease was transmittible by cohabitation only, and during the animal's life.

The various writers on the subject couch their definitions of the disease in various terms ; they all, however, appear agreed that it is a contagious fever, peculiar to the bovine species, and due to a specific poison, which manifests itself by exudations from the pleuræ and in the substance of the lungs, and having a period of incubation of from fourteen days to a time not yet definitely known. The general symptoms will be so well known to all the gentlemen present that I do not propose to take up your time by describing them in detail, but I shall have to mention some of them when noticing the diseases with which Pleuro-pneumonia Contagiosa is most easily confounded, and probably the disease with which it is most easily confounded is Tubercular Phthisis ; in fact I think there are cases where, in the absence of any history to guide him, even the most skilful veterinary surgeon may have great difficulty in arriving at a correct diagnosis during the animal's life ; it is, however, of the greatest importance that we should be able to distinguish between the two, and this is one of the points I should particularly like to hear discussed by the gentlemen present.

I think that in Tuberculosis the cough is neither so frequent or so painful, nor is there so much tenderness shown upon pressure being applied to the animal's back and sides, as in Pleuro-pneumonia Contagiosa ; and although in both diseases auscultation will reveal either an absence of respiratory murmur, or else abnormal sounds within the cavity of the chest, yet on percussion the dull and "thud"-like sound produced is more marked in Pleuro-pneumonia Contagiosa than in Tuberculosis. Again, animals affected with Tuberculosis do not so often emit that involuntary grunt which is so frequently met with at each expiration of Pleuro-pneumonia Contagiosa, and in milch cows the lacteal secretion disappears, or is diminished in quantity much more suddenly in Pleuro-pneumonia Contagiosa than in Tuberculosis. I do not think the thermometer is of much use in enabling us to diagnose between the two diseases, as in both there is an elevation of temperature.

Animals affected with Filaria, or with Hoose, as it is commonly termed, have occasionally been thought to be suffering from Pleuro-pneumonia Contagiosa, but Hoose is usually confined to young animals ; there is an absence of the grunt, and the cough is the moist cough of Bronchitis rather than the hard, dry cough of Pleuro-pneumonia Contagiosa, and in hoose there is usually a quantity of frothy saliva or mucus in and around the mouth, in which the filaria or their eggs may be detected, and in this disease the thermometer does not register nearly so high a temperature as in Pleuro-pneumonia Contagiosa. Foreign substances in the lungs often give rise to symptoms somewhat simulating those of Pleuro-pneumonia Contagiosa. A case recently came under my notice in which a cow during life showed several such

symptoms, but a *post-mortem* examination revealed the presence of several pieces of wire embedded in the substance of the lungs.

An animal affected with Pleurisy may present many of the symptoms of Pleuro-pneumonia Contagiosa, but here the pulse is hard and bounding—not weak and feeble, as in Pleuro-pneumonia, and the animal evinces great pain when made to turn round suddenly. Occasionally, too, cases of Indigestion, when accompanied with a grunt, have been mistaken for Pleuro-pneumonia Contagiosa.

A great difference of opinion exists among authorities as to what particular portion of the lung is primarily attacked by the disease, some holding that it is the mucous membrane of the bronchi; others the connective tissue or the lobules; while others hold that the pleuræ is the seat of the earliest lesion. In examining a portion of lung when taken from an animal in an early stage of the disease, it is in the connective tissue that we find the greatest amount of exudation, and I therefore think it is probable that it is from the vessels of the connective tissue that the exudate is first thrown out.

Upon making a *post-mortem* examination of an animal that has been slaughtered while suffering from the disease in an early stage, we shall probably find a small quantity of fluid in the cavity of the chest; the pleuræ will not have undergone any very marked changes, but may appear slightly elevated in patches, which elevation is caused by the effusion of serum into the connective tissues lying beneath it, and on the surfaces of the pleuræ may be a slight exudation of lymph; the lung is increased in weight, and upon cutting into it the parenchyma will be found to be darker than is natural, and studded with minute red spots; these red spots being the cut ends of the engorged capillaries and the interlobular tissue will be found charged with a serous effusion, which, when examined under a high microscopic power, is said to contain a number of minute living organisms moving in a rotary direction. These changes in the lung tissue will not be present throughout their entire substance, but in a patch or in isolated patches, the peculiarity of the inflammation of this disease being to attack groups of lobules or a single lobule lying some distance apart. Thus we may have a portion of diseased lung, and at a distance of several inches another diseased portion, the intervening lung tissue being healthy; in this respect it differs from the sporadic Inflammation of the Lungs in which the whole substance of the lung is attacked, the lymphatic glands and the lymphatic vessels will be increased in size and loaded with fluid. In this stage the blood-vessels will be empty and the smaller bronchi filled with a frothy material, consisting of serum mixed with air; it is in this stage of the disease that some operators say is the best time to take for inoculation the lymph which exudes from the cut surface of the lung.

Upon making a *post-mortem* examination of the lungs of an animal suffering from the disease in a later stage, the morbid changes are much more marked; the mucous membrane of the trachea is darkened in colour, and thickened in consequence of the exudate existing beneath it; the lymphatic vessels will be filled with lymph, and their coats considerably thickened; portions of the lung will feel hard to the touch, and the lungs will be attached to the ribs and diaphragm by false membranes. In the cavity of the chest there will be a quantity of yellowish fluid, in which float flakes of fibrin. This fluid is varying in quantity; there may be but little or there may be several gallons; and it is this difference in the quantity of fluid found in the chest that causes butchers to speak of an animal as being a “wet lunger” or a “dry lunger.” This fluid contains a large quantity of albumen, and coagulates upon exposure to the atmosphere. Upon the surface of the pericardium and upon the surface of the pleuræ are deposits of lymph, which form the false membranes, by which the lungs are in places attached to the

sides and the diaphragm. These false membranes are yellow in colour, friable, and easily broken down. Upon stripping off the lymph from the pleuræ pulmonalis, the surface of the lung is seen to be rough and studded with papillæ-like bodies, and upon stripping off the pleura costalis the intercostal muscles appear to be pale in colour and dropsical; the lung is increased in bulk and in specific gravity, and a diseased portion sinks immediately if thrown into water. Upon cutting into the lung substance, it presents a marbled appearance, the lobules being of a darker hue than the connective tissue, and from the cut surface of the lung there exudes a great quantity of serum. The parenchyma is dark in colour and solid; the air-cells and smaller bronchi obliterated by being plugged with lymph; the blood-vessels are filled with coagula, and the capillaries are ruptured, the contents of which escape and discolour the tissues, causing what is known as red hepatisation. The lung structure surrounding the diseased portion is darker in colour and more solid than natural, the interlobular tissue being more clearly defined, and giving it a somewhat mottled appearance. This mottling is caused by the infiltration into the connective tissue between the lobules of the exudate from the adjacent diseased portion, and it is from this part of the lung that the lymph used in inoculation must be taken if no opportunity occurs in procuring it from lungs in an early stage of the disease.

In severe cases death results from Apnœa, consequent on the non-oxidation of the blood by reason of the changes in the lung tissue, or in a long-standing case the animal may die from Anæmia or from Pyæmia, caused by the absorption into the system of the diseased products from the lungs. Pericarditis is a frequent complication of Pleuro-pneumonia Contagiosa, there usually being effusion into the pericardium, which effusion—if the animal partially recovers—may become organised, and form false membranes, or it may degenerate and cause an accumulation of pus in the heart's sac.

Some cases do not proceed to a fatal termination, for in many instances recovery, or rather partial recovery, may take place, for a lung once attacked with Pleuro-pneumonia Contagiosa never resumes its normal appearances or functions, the diseased portion undergoing one of the following changes:—If the progress of the disease is arrested at an early age, the exudate becomes lowly organised and converted into a fibrous substance, which may afterwards undergo softening and cause abscesses in the lungs, or, if the disease be arrested at a later stage, a quantity of lymph is thrown out from the neighbouring healthy lung tissue, which lymph becomes organised, forming a wall round the diseased portion, which after a time becomes detached, and this encysted portion may remain in this condition for a long time. Such cases are of far more frequent occurrence than is generally supposed, and are generally overlooked in consequence of the animal feeding and doing well. I think, however, that it is from these cases that much of the danger to healthy animals springs, for it is possible that an animal whose lungs are in this state is capable for a considerable time of transmitting the disease, especially when the portion of encysted lung is in the immediate neighbourhood of a large air-tube; indeed, it is possible that such an animal may from itself become infected a second time, and it is very likely that to cases of this kind many of the outbreaks are referable which are supposed to originate spontaneously; and it shows the importance of carefully examining the lungs of all the animals that may have been slaughtered in consequence of having been herded with diseased animals, for by so doing we may occasionally arrive at the cause of an outbreak, the origin of which we have been previously unable to trace. Cases of this kind have recently come under the notice of Mr. Stephenson and Mr. Dudgeon, who has kindly brought a portion of the lungs of an infected animal for your inspection. It is of great importance that we should be able to distinguish

correctly between a portion of lung so encysted and Tuberculosis. In a case of Pleuro-pneumonia Contagiosa, the encysted portion is enclosed in a well-defined sac, and shows but little tendency to undergo degenerative changes ; it is said never to undergo calcareous, and not in many instances caseous, degeneration, and for a long time its lobulated character is distinctly visible upon making a section ; while with Tuberculosis, in addition to the deposit in the lungs, we shall most likely, if we make a careful examination, discover additional tubercular deposits in other parts of the body.

It is an important but much disputed question, as to whether the flesh of an animal that has been slaughtered while suffering from Pleuro-pneumonia Contagiosa is fit for human food. I think that the simple fact of an animal having suffered from the disease, even at the time of slaughter, does not necessarily unfit it for food, provided always the carcase—to use a butcher's term—"dries well," and the flesh is of a good colour and firm in texture ; but I know some inspectors of meat who hold a different opinion, and who, if they find the lungs affected, condemn the carcase irrespective of the appearance of the flesh. There are cases where the animal was in a sinking condition, and was perhaps at the time of slaughter upon the point of dying from Pyæmia, where of course it would not be advisable to use the flesh for food ; but, as I said before, I think it is by the quality of the meat itself that we should be guided as to its fitness for food. I think this meat question is one that should be referred to the educated and duly qualified veterinary surgeon, instead of being left in the hands of the individuals it usually is at the present time, and I hope the day is not far distant when veterinary surgeons will be universally employed by the authorities in advising what meat is fit for human food and what is not.

I do not intend to touch upon the treatment of the disease, as by the existing orders of the Privy Council Office the slaughter of infected animals is compulsory ; and not only is the slaughter of the infected animals compulsory, but powers are given to local authorities to order the slaughter of all cattle that have been in the same shed or herd with animals so affected, and to pay compensation for the same out of the local rates. Unfortunately, it is not every local authority that will avail themselves of these powers, some contenting themselves with the slaughter of the actually infected animals only ; but I think it is only by the slaughter of the whole herd that we shall ever stamp out the disease, and I think that all veterinary surgeons who act in the capacity of professional advisers to local authorities should impress upon their employers the advisability of availing themselves of the powers to slaughter conferred upon them by the Privy Council Office.

From time to time various medicinal agents have been given to cattle with a view of preventing the disease, seemingly, however, without producing the desired result. Setoning, rowelling, and bleeding have also been had recourse to, and have also failed ; inoculation has also been largely practised, many veterinary surgeons of large experience believing in its efficacy and advising its adoption, while on the other hand many deny that it is a preventive. Those who practice it say that it does not produce Pleuro-pneumonia Contagiosa, but produces a change in the animals' system, which renders them incapable of contracting the disease, and direct that it be performed by inserting as a seton in the underneath surface of the tail, about two inches from the tip, a small piece of tape or worsted saturated with lymph taken from the lungs of an animal affected with Pleuro-pneumonia Contagiosa ; and that in about ten or twelve days after the operation, if there is an exudation of lymph from the skin near the seat of the operation, it is a proof of successful inoculation, and that the animal is safe from an attack of the disease. The great objection to inoculation is that frequently an unhealthy sore is formed at the seat of the operation, sloughing takes place, and the animal loses a

portion, and in some instances the whole, of the tail ; and that occasionally, if the animal is not in a good state of health at the time of the operation, the inflammatory fever set up is so great as to endanger the animal's life ; the loss from the latter cause, however, it is said, need not exceed one per cent. if the operator is careful in his selection of lymph, and the animal is carefully attended to and not injured by bruises after the operation. As a further means of prevention, I would suggest that when Pleuro-pneumonia Contagiosa makes its appearance in a herd, and the local authority does not insist on the slaughter of all the animals, that the temperature of each individual animal be taken daily, and if in any case the temperature rises over 102° F. the animal be isolated, and as we do not know the exact stage of the malady at which an animal becomes capable of transmitting the disease, it is just possible that by isolating animals immediately there is a rise in temperature, and by the free use of disinfectants, that we might limit the ravages of the disease. In a short paper like this, it is impossible to give the full consideration such an important subject deserves, but the time at our disposal is short, and I think that we derive much more benefit from a discussion than from listening to the opinions of any one individual, but I trust that the few remarks I have put together will lead to a discussion, from which we shall all derive some benefit.

A very interesting discussion followed, the chief bone of contention being, "How was the disease transmitted : by cohabitation or mediate contagion?" The subject being very interesting and highly important, further discussion was adjourned until the next meeting.

Mr. D. Dudgeon exhibited some very interesting specimens of Pleuro-pneumonia Contagiosa recently affected, showing well-marked traces of old-standing disease.

A hearty vote of thanks to the essayist and to the retiring President brought a very enjoyable meeting to a close.

GEORGE ELPHICK, *Secretary.*

SCOTTISH CENTRAL VETERINARY MEDICAL ASSOCIATION.

THE fifth quarterly meeting of the above Association was held in the Crown Hotel, Green Market, Dundee, at two p.m., 10th April, 1883—Mr. Ritchie, Vice-President, in the chair—the following members being present, viz. :—Messrs. Black, Johnstone, Philp, Hampton, Panton, Hunter, Kay, Constable, Bissett, Baillie, and Clark, Secretary, Coupar Angus.

Mr. Kay, St. Martin's, having been nominated for membership at last meeting, was declared elected.

The TREASURER (Mr. Philp, St. Andrew's) read a financial statement of the Association for past year, showing the affairs to be in a satisfactory condition.

Several letters were read by the SECRETARY, and particular reference was made to letters from Mr. Geo. A. Banham, Cambridge, Secretary, National Veterinary Association, requesting support of members. After full discussion, it was considered by the majority present that it would be extremely inconvenient for members so far North to attend personally at meetings in London : consequently they could not see their way to join the National Association.

Mr. Spreull, President, having come to the meeting at this stage of the proceedings, the chair was vacated by Mr. Ritchie in his favour.

Mr. SPREULL gave a short address, thanking the members for having re-elected him President for another year, and promised to use every means in forwarding the interests of the Association. Mr. Spreull also explained the

nature of the memorial as proposed at the united meeting held in Glasgow in December last which was to be presented to the Royal College of Veterinary Surgeons by the three Associations of Scotland jointly. The Council of the R.C.V.S. were respectfully asked to adopt the scheme of a constituency representation, and allot one member to each district, giving England and Wales eighteen, Ireland three, and Scotland six; also one to each of the four Veterinary Colleges. The method of election being thus considerably simplified, as if no more than one man was nominated for a particular district, he could, after the lapse of the necessary time, be declared elected without a contest, as in the case of Parliamentary and Municipal elections.

Mr. SPREULL announced that Mr. Geo. Fleming and Professor McCall, of Glasgow, had promised to address the Association.

After the discussion of some minor matters the meeting was brought to a close.

JAS. CLARK, *Secretary*.

IRISH CENTRAL VETERINARY MEDICAL SOCIETY.

THE usual quarterly meeting of the above Society was held in the rooms of the Royal Dublin Society, Kildare Street, Dublin, on the 21st March. There was a good attendance of members, Mr. W. Pallin, Vice-President, in the chair.

The minutes of the former meeting were read and signed, and the Report of the Committee appointed at that meeting, on the motion of Mr. M. Hedley, for the purpose of inquiring into the title of several candidates for Registration was laid before the society, and agreed to.

Mr. J. G. O'Donel, and Mr. Jas. McKenny, of Dublin, were balloted for and unanimously elected. Mr. A. R. Simpson, Government Inspector, Newry, was proposed and seconded for membership, to be balloted for next meeting.

On the motion of Mr. Bell, F.R.C.V.S., Clonmel, seconded by Mr. Pallin (late 20th Hussars), it was unanimously resolved to ask the Council of the R.C.V.S. to arrange to hold the annual meeting in Dublin. This resolution was discussed at some length, and there was a full consensus of opinion that the holding of the meeting in Dublin would tend materially to strengthen our position as a body, and would form the best possible protest on the part of the profession against the agitation now being carried on by a number of persons wholly unconnected with our body, with a view of establishing an independent licensing College in Ireland. A belief was expressed that this agitation is deprecated by the whole of the profession in Ireland, with the exception of some solitary individuals, who from interested motives are lending it their questionable support. The Secretary was requested to communicate with the Secretary of the College to this effect.

A number of other business matters were gone into and discussed, and the meeting was adjourned until the 5th April, for the purpose of a paper by Mr. J. D. Lambert, A.V.D., on the "Germ Theory."

A collection of specimens of surgical instruments and appliances, manufactured by Messrs Arnold and Sons, had been forwarded for inspection by the members, and created much interest.

On April 5th, the adjourned meeting for the purpose of hearing Mr. Lambert's paper was held, Mr. W. Pallin, Vice-President of the Society, again occupying the chair, in the absence of the President, Mr. J. Malcolm.

There were also present — Messrs. M. Murphy, P. A. Lawlor, T. D. Lambert, J. Freeman, Matt. Hedley, J. McKenny, H. J. Kelly, R. H. Bird, G. B. Miller, J. G. O'Donel, Dublin ; J. Bell, Clonmel ; J. Preston, Mallow ; and as visitors there were Drs. M. J. Donnelly, O'Donel, Keegan, and Cormack ; with Messrs. H. Forewell, W. Teeling, R. Cantrell (Chief Clerk, Veterinary Department, Dublin), and the Secretary.

Mr. Lambert's paper was copiously illustrated by means of diagrams, and was listened to with considerable interest.

A discussion followed the paper, in which the President, Mr. J. D. Lambert, Mr. Matt. Hedley, Dr. Donnelly, and the Secretary took part. A cordial vote of thanks to the essayist, proposed by Mr. Kelly and seconded by Mr. P. A. Lawlor, brought the meeting to a close. It was decided to hold the next meeting in the Horse Show week.

JOHN J. SPERRING, F.R.C.V.S., *Hon. Sec.*

ROYAL (DICK) VETERINARY COLLEGE.

THE annual presentation of prizes to the students attending the Royal (Dick) Veterinary College took place on Thursday, March 30th, in the Council Chambers. There was a large attendance of members of the Town Council, the Professors of the Dick College, and others.

Lord Provost HARRISON, who occupied the chair, said he was very glad to see so large an audience and so many young men connected with this college. It was exceedingly pleasant to learn that the last year—the one for which they were now acting, had been the most profitable both to the students and in every other way of any year since its commencement. They also had the largest number of students, and he was sure they had done the best work that had ever been done in their college. (Applause.) Everything, so far as he could learn, had gone on in a very pleasant manner. There had been over 130 in the class, a number which had never been reached before. The Lord Provost then expressed the hope that the class would go on increasing until it was necessary to enlarge the college. (Applause.)

Professor WALLEY said he could honestly say that on the whole the competitions during the past sessions, had been of a very high character, and in many of the subjects the papers had been exceptionally excellent. Two of the students had run very close together, although the one had kept ahead all the time, so that he had the largest share of the prizes. In conclusion, Professor Walley said he was pleased to say that so far as the harmony between class and teachers was concerned, of all sessions the past session was the pleasantest. (Applause.)

The Lord Provost then presented the prizes to the successful competitors as follows :—

Certificate for Best Matriculation Examination—Mr. Marsden, Banff. College Medals (Gold)—Physiology, 1881-82 ; Anatomy, 1881-2 ; Chemistry, 1880-1 ; Veterinary Medicine and Surgery, Cattle Pathology, 1882-3 (presented by A. Harris, Esq.)—Arthur New, Ampthill, Beds. College Medals (Silver)—Junior Anatomy, 1880-1 (Professor M'Fadyean's) ; Practical Pathology, 1882—Arthur New, Silver Medal for Distinguished Attainments—William Hockett, Folkingham. Certificate of Distinction—William Kirk, Edinburgh. Silver Medal (given by Professor Walley for General Excellence in Veterinary Medicine and Surgery)—Henry Holroyd, Blackburn. Veterinary Medical Association Medals (silver) for the best Essay of the Session—Murray Lornie, Errol, Perth ; for the best Communication of the Session—John Francis Mahony, Cork.

Highland Society's Class Medals (Silver)—Botany, 1880—Arthur New. Anatomy, 1881-2 ; Chemistry, 1880-1 ; Veterinary Medicine and Surgery. Cattle Pathology, 1882-3—Kenneth James Urquhart, Newton-le-Willows. Botany, 1881—Harry M. Maxwell, Orton Waterville, Peterboro'. *Materia Medica*, 1881—David J. Barry, Limerick. Physiology, 1881-2—Charles S. Smart, Musselburgh.

The LORD PROVOST afterwards congratulated the prize-winners on the magnificent trophies of their labours. He also congratulated those who had not won prizes for the race they had run, pointing out at the same time that there were various circumstances which operated in prize-winning to the favour of one class of men and against another, but it by no means followed that the race in life would be won by those who were first in the early battle. As an instance of this he referred to Sir Walter Scott, who was so frequently found at the bottom of the class. He counselled them all to work hard in theory and practice, and said that very good work had been done by former students of this College in Afghanistan, the Cape, and in Egypt. (Applause.) He was glad to learn as a proof of the harmony in which they had all been working that during the course of the session an address and a valuable ring were presented by the students to Professor M'Fadyean. (Applause.) In conclusion he thanked the Highland Society for the kind interest it showed in the College.

Bailie HALL, in moving a vote of thanks to Principal Walley and the other Professors, said the trustees and the students were much indebted to them for the way in which they had kept up the prestige of this old institution. Many of them could look back to the time when Professor Dick sat in that chamber as a Town Councillor—a man of great shrewdness, determination, and force of character. He was a man of deeds not of professions only. (Applause.) It happened that his venerable sister had been poorly of late, but whether she lived longer or not the name of Dick would go down to posterity and be esteemed by all men of veterinary science. (Applause.)

Principal WALLEY replied and moved a vote of thanks to the Lord Provost for presiding.

The proceedings then terminated.

EDINBURGH NEW VETERINARY COLLEGE.

THE distribution of medals and certificates at the close of the winter session of the Edinburgh New Veterinary College, Gayfield Square, took place recently. Principal Williams, before presenting the prizes, expressed the pleasure he had in doing so, because he could safely say he never presented prizes to classes which as a rule had worked harder. It gave him a degree of pleasure also mixed with sorrow, that in all probability this was the last winter session they would have in that building. As they were all aware, the college was very much too small for their requirements, and he had entered into an engagement for the building of another college in Leith Walk, which would be ready by next winter session. It would accommodate at least the number of students who would present themselves within the next ten years. In that building they would have one large class-room to hold 250 students, and another that would hold 100 students. In addition to these they would have a large museum, a reading room for the students, a bone room, a dissecting room, and two laboratories—one for chemistry and one for teaching the use of the microscope in connection with physiology and pathology. He referred to the importance of a knowledge of the microscope and the way to use it, and illustrated that by stating that a week or two ago a mysterious disease appeared at a farm near Stow,

from which two horses, five cattle, several pigs and cats died between Saturday night and Tuesday morning, all presenting the same symptoms. By microscopic examination they discovered organisms in the blood of these animals, more particularly in the exudations which caused the swelling of the throat. But how to trace these organisms was a matter of some difficulty. But by means of inoculation and cultivation they found the same organisms in the water which was used at the farm, and after the supply was cut off there was not another case of disease. No veterinary surgeon need nowadays go into the world if he did not understand how to trace the origin of diseases of this kind, and to trace them successfully required an intimate knowledge of the microscope. In a great undertaking like the building of this new college he could not appeal to the public like the Universities. But his profession was a progressive one, and he had every confidence in the result. He then presented the prizes to the successful students. Mr. W. R. Davis gained the Edinburgh Veterinary Medical Society's silver medal for the best essay on the examination of horses as to soundness. He was also presented with a cheque for twenty pounds, presented by Principal Williams himself annually to the student who passed the best first and second examinations before the Royal College of Veterinary Surgeons. He then presented to Mr. A. J. Haslam, Manchester, the Highland Society's silver medals for the best examination last year in chemistry and materia medica, and also the Highland Society's silver medals for the middle examinations in anatomy and physiology this year. Mr. William Lothian, Duns, obtained the junior medal for botany. Mr. W. D. Conochie, Selkirk, and Mr. J. A. Robinson the Highland Society's silver medals for chemistry, and Mr. R. J. Hickes the Society's medals for the best examinations in the pathology of the horse and the pathology of cattle. Certificates were also given to dressers, dispensers, curators, etc. At the close, on the motion of Dr. Stevenson Macadam, a vote of thanks was given to Principal Williams. The college was instituted in 1873, when fifty-seven students attended. The session just closed was attended by 154 students.

ROYAL AGRICULTURAL SOCIETY.

AT the Council-meeting held on April 4th it was reported that Professor A. P. Thomas had completed for the *Journal* his paper on the "Natural History of the Liver-fluke and the Prevention of Rot." The following preventive measures were recommended by him :—

1. All eggs of the liver-fluke must be rigorously destroyed. Manure of rotten sheep, etc., must not be put on wet ground.
2. If sheep are rotten, let them be sent to the butcher at once, unless they are specially valuable and are not badly fluked. If kept, they must not be put on to wet ground.
3. Care must be taken to avoid introducing eggs of the fluke, either with manure, or with fluked sheep, or in any other way. Rabbits and hares must not be allowed to introduce the eggs.
4. All heavy or wet ground must be thoroughly drained.
5. Dressings of lime or salt should be spread over the ground at the proper seasons, to destroy the embryos, the larval forms of the fluke, and also the snail which harbours them.
6. Sheep must not be allowed to graze closely, for the more closely they graze the more fluke-germs will they pick up.
7. When sheep are allowed to graze on dangerous ground they should have a daily allowance of salt and a little dry food.

If all farmers will unite in carrying out the above preventive measures, suggested by the knowledge of the life-history of the parasite, there is no reason why the fatal ravages of the destructive fluke should not be so restricted that the losses would at once be reduced to a comparatively trifling amount. There is at present one obstacle in the way of the total extermination of the fluke. So long as rabbits and hares have free liberty to convey the infection from one district to another, there will always be a danger of a fresh outbreak in places where the fluke had for the time been driven out. And for rabbits in a state of nature we cannot adopt preventive measures in the same way that we can for domesticated animals ; so that on wet waste lands the breed of flukes may be constantly kept up. Very much, however, may be effected by united action ; and if the preventive measures which are now suggested are strictly carried out by all, we shall hear no more of disastrous outbreaks of the Sheep-rot, and something at least will have been effected towards raising the fortunes of British agriculture.

This report was adopted.

EXAMINATIONS OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

AT the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held on the 28th and 29th March, 1883, the following students from the Royal Veterinary College were admitted members of the profession :—

Mr. Henry A. Young	...	...	The Ford, Dunmow, Essex.
„ Charles Hartley	...	...	Crewe, Cheshire.
„ Herbert Ernest Pinel	...	...	Coin Hâtain, St. Lawrence, Jersey.
„ Charles Edwin Nuthall	...	...	Down Hall, Kingston, Surrey.
„ Edward Whitley Baker	...	...	45, Emmanuel Street, Mile End, Portsmouth.
„ Layton J. Blenkinsop	...	...	39, Hilldrop Crescent, Camden Road, London.
„ John Morton	...	...	St. John's, Worcester.
„ Martin Robinson	...	...	Birdwell, Barnsley, Yorkshire.
„ Samuel James Marriott	...	...	The Grove, Milton, Northampton.
„ *John George Parr	...	...	Egerton Villa, St. James's Road, Leicester.
„ Edwin Hills Hazelton	...	...	9, Prospect Place, Southampton.
„ Charles Wood Page	...	...	The Green, Banbury, Oxon.
„ James Vincent Daly	...	...	Liffey Bank, Dublin.
„ *William Harvey Bloye	...	...	8, Westminster Terrace, Mutley, Plymouth.
„ John Bush Hart	...	...	Dunhomtollah, Calcutta.
„ David M. Barry	...	...	Churchtown, Cork, Ireland.

The following students passed their "Second Examination" on 4th, 5th, and 6th April :—

Mr. Joseph Smith.	Mr. F. Bazley.
„ Walter Bugg.	„ J. Walker.
„ H. E. C. Selfe.	„ W. Brookes.
„ T. W. Turner.	„ H. C. Wilkie.
„ J. G. Watson.	„ *A. C. Piesse.
„ *T. A. Britton.	„ Frederick Charles Mahon.

Mr. *G. H. Evans.
 „ †H. B. Whigham.
 „ W. Drewitt.
 „ *J. Hammond.
 „ A. C. French.
 „ E. R. Butler.
 „ *H. L. Pemberton.

Mr. W. H. Taylor.
 „ W. Willis.
 „ J. E. Rickards.
 „ E. J. Catmull.
 „ G. H. Golding.
 „ †E. Taylor.

The following students passed their “ First Examination ” on 7th and 9th April :—

Mr. F. M. Stephens.
 „ F. R. P. Gooderson.
 „ *R. A. Lord.
 „ B. Lacey.
 „ A. E. Sangster.
 „ J. M. Tebbot.
 „ G. C. Cox.
 „ R. Polglase.

Mr. G. D. Lansley.
 „ N. Blancard.
 „ Joseph Bates.
 „ T. S. Lucking.
 „ †J. T. Vickery.
 „ W. James.
 „ *H. G. Rogers.
 „ G. E. King.

* Marked thus passed Great Credit.

† Marked thus passed Very Great Credit.

ROYAL VETERINARY COLLEGE.

Matriculation Examination, April 25th and 26th, 1883.

SUCCESSFUL CANDIDATES, IN ORDER OF MERIT :—

Mr. J. A. Hives.
 „ H. Goodwin.
 „ L. P. Rees.
 „ W. E. Dain.
 „ L. Silverthorne.
 „ J. Porter.
 „ W. Sheel.

Mr. W. Western.
 „ J. A. Sudren } Equal.
 „ C. A. Johns }
 „ C. K. Dobson.
 „ H. Broad }
 „ W. E. Matthews } Equal.

Parliamentary Intelligence.

House of Commons, April 2nd.

THE PURCHASE OF MULES FOR THE EGYPTIAN EXPEDITION.

Dr. CAMERON asked the Surveyor-General of Ordnance respecting the mules purchased for the Egyptian expedition by Major Carré at Smyrna, what was the number of animals purchased, and the number declared fit for service when landed at Ismailia, and whether Major Carré, during his stay at Smyrna, was the guest of the contractor from whom he purchased the said mules.

Mr. BRAND said that the number of animals purchased was 700. The board of officers found 198 fit for immediate service out of the first consignment of 612, but the majority of the balance—*i.e.*, 414 mules—were fit for work after periods ranging from five to fourteen days.

CATTLE PLAGUE IN EGYPT.

Dr. CAMERON asked the Secretary of State for War whether it was true that two outbreaks of Cattle Plague occurred among the oxen sent from India for the use of the troops in Egypt ; whether in one of those outbreaks the affected animals, instead of being destroyed and buried, were simply driven forth to die ; and whether the result was that the road to Kassassin having been thus infected, cattle for the use of the troops were subsequently obliged to be sent up by train.

Sir A. HAYTER : Yes, sir, it is true that two outbreaks of Cattle Plague occurred among the Indian cattle. We have definite information as to the cattle first affected, thirty-six in number. Of these ten died and twenty-six were destroyed and buried. We have no details as to the second outbreak among the Indian cattle, as to the numbers affected or as to their disposal. It is not the fact that the road to Kassassin ever became infected, and the cattle were sent through by rail to Cairo, not on that account, but to ensure their arriving in good condition for issue to the troops. There was not a single case of Rinderpest or Cattle Plague throughout the campaign among the cattle destined for the use of the English troops.

House of Commons, April 16th.

MULES FOR THE EGYPTIAN EXPEDITION.

Dr. CAMERON asked the Financial Secretary to the War Office, with reference to the mules purchased by Major Carré for the Egyptian Expedition, whether they had as yet been paid for ; if so, it being acknowledged that the veterinary surgeon who accompanied Major Carré to Smyrna refused to pass the mules, and that the Committee appointed to report on them on their arrival at Ismailia reported only 198 out of a consignment of 612 animals as fit for service, by whose authority the payment was made.

Sir A. HAYTER : The mules alluded to in the hon. member's question as purchased at Smyrna, were paid for in London under the terms of the contract on the receipt of the mules in Egypt being certified by the local military authorities. The board held in Egypt declared 198 mules to be fit for immediate service ; the majority of the remainder were fit, and went to work within five to fourteen days.

Dr. CAMERON further inquired whether it was customary to pay for animals purchased under the inspection of a veterinary surgeon when that veterinary surgeon had refused to pass them.

Sir A. HAYTER : It is not the case that the veterinary surgeon refused to pass the mules.

THE VETERINARY DEPARTMENT OF THE ARMY.

Colonel O'BEIRNE asked the Secretary of State for War whether it was contemplated in the forthcoming warrant to apply the same principles which regulated the ratio of pay between effective and non-effective pay in other departments of the Army to the veterinary department.

Sir W. HAYTER : No, sir ; it is not proposed to make any change in the retired pay of the veterinary department. My hon. and gallant friend is probably aware that the present rate of retired pay for a veterinary surgeon

is one-half the rate of full pay of their rank at retirement after twenty years' service, and seven-tenths of the same after twenty-five years' service. It is not proposed to disturb these rates at present.

Army Veterinary Department.

Gazette, April 3rd.

Veterinary Surgeon T. J. Symonds to be Veterinary Surgeon, First Class.

Obituary.

THE death is reported of Mr. John Parker, M.R.C.V.S., who died at Bake-well, Derbyshire, on March 17th, aged only thirty-five years. He graduated in 1869.

Charles Middlehurst, M.R.C.V.S., of Liverpool, who graduated in 1872, died on March 26th.

Notes and News.

A HORSE CORONER'S REPORT.—At a recent meeting of the Islington Vestry Mr. Caleb J. Hunt, Inspector of Houses for Slaughtering Horses, reported that during the last twelve months the animals brought to the slaughter-houses in his district (Islington) have been as follows :—Horses, alive, 4,170 ; cows, dead, 5,650 ; bulls, dead, 20 ; heifers, dead, 6 ; mules, dead, 6 ; donkeys, alive, 14 ; donkeys, dead, 20 ; stirks, dead, 2. He also stated that he had been the means of restoring to their owners two live horses.

PROFESSIONAL JEALOUSY.—A physician falls into a fit while making a round of visits, and is carried into a drug store. "Send for Dr. X—," says somebody. "No, no, not for him," says the dying man feebly, at the mention of his rival's name. "If he brought me round it would advertise him ! I prefer to die."

IS SYPHILIS COMMUNICABLE TO THE LOWER ANIMALS?—Professor Neumann has lately published (*Wiener Med. Wochenschrift*) the results of certain experiments performed by himself on various animals, with the object of determining the above question. The animals experimented on were three apes, two horses, a hare, a rabbit, a guinea-pig, a marten, a rat, and a cat. These animals were carefully inoculated in one or more places, and, in some cases, on several occasions, with the discharge of indurated syphilitic sores, or of syphilitic papules, or the indurated sore itself was excised, and immediately introduced into the cellular tissue of the animal. The pus of soft chancres was also inoculated in some of the experiments. The material employed was transferred directly, and without delay, from the patient to the animal, with all due precaution. The period during which the animals remained under observation, after inoculation, varied considerably ; in some, the time seems to have been hardly sufficient for forming a decisive opinion ; and, in some, the duration is not stated. In one instance,

however, that of a female ape, the animal was under close observation for four months and a-half, during which time it was inoculated on eight separate dates, on various parts of the body, with the secretion both of hard and soft sores, a hard sore being also implanted beneath the skin on one occasion. In this, as in all the other experiments, the result was negative ; that is to say, although local reaction—*e.g.*, abscess—sometimes occurred at the site of inoculation, nothing resembling a hard or a soft sore was ever produced. Thus Neumann is of opinion that syphilis is a disease belonging exclusively to human beings.

MULE-BREEDING OPERATIONS IN MADRAS.—At last there is a prospect of these operations proving a success, states the *Madras Times*, Government having entrusted their direction to a specially trained officer, Veterinary Surgeon Mills. As our readers may recollect, Mr. George Shaw, the popular veterinary surgeon, first induced Government to move in this direction some four or five years ago. Some very fine donkey stallions were imported from Spain and Egypt, and distributed over the various Collectorates in the Presidency. Unfortunately for the scheme, Mr. Shaw had to go home sick shortly after, and the work had to be taken up by another officer, Mr. Adams, in addition to his other duties. With the conservative habits of the Madrassi ryot to contend against, and pressure of his other duties, Mr. Adams has bravely fought on, though with but little success. Recently Government created the appointment of Inspector of Cattle Disease, and finding a proper man handy in Veterinary Surgeon Mills, they nominated him to the duty, and have now added the direction of the mule-breeding operations to his duties. Under Mr. Mills the scheme is bound to succeed, if it is possible to do so ; and as success will be a great advantage to the Presidency, we shall be happy to assist Mr. Mills by giving prominent insertion in this journal to any suggestion he may desire to put before the public.

Correspondence, etc.

A WORD OF WARNING.

DEAR SIR,—I see the North of England Veterinary Medical Association, being unrepresented on the Council of the R.C.V.S., have made Mr. C. Stephenson their nominee for the forthcoming election. I, for one, should have been pleased to help them ; but how can they expect us to vote for a man who has proved himself to be an enemy to the welfare of the profession, viz., by doing all in his power to prevent the Veterinary Surgeons Bill becoming law ? At a meeting of the above-mentioned Association the other day, when speaking of compulsory pupilage, he said :—"You also know that I honestly (?) opposed the Veterinary Surgeons Bill, that was recently passed by a fluke, and that in doing so I received a good deal of blame and even abuse." Allow me to tell Mr. S. that if it had not been for the opposition of two or three members of our profession (himself included), the Bill would have passed in almost its entire state, instead of having to be curtailed in many respects ; and as regards the blame and abuse, I think he richly deserved all he got, and more besides. Now that the whole profession have a chance of showing their abhorrence of such conduct, I sincerely trust they will do so by placing Mr. C. Stephenson at the bottom of the poll.—Faithfully yours,

"A COUNTRY PRACTITIONER."

"TIPPING."

SIR,—All who read "East Anglia's" remarks (which appeared in the Journal for March) can find something to which they can say Amen; but as regards the system of "tipping" of which he complains, he is under "a cloud the size of a man's hand." If the system of espionage ended with an occasional glass of beer or the extreme solicitation shown to drink the veterinary surgeon's health at Christmas, there would not be so much to complain of.

The East Anglians are evidently in advance of their southern brethren, and this applies to the Metropolis, as well as to other large towns.

It is a common practice in Brighton to give the coachman a shilling out of every set of shoes supplied, and eighteenpence is no uncommon "discount" to give where the *professional gentleman* and the coachman can agree to charge a high price. A still more lucrative *arrangement* is that of charging for a set of shoes every three weeks, and removes every two weeks, irrespective of the wear or requirements of individual horses, while supplying as few shoes as can be retained on the feet by occasional nailings. Besides the shilling or eighteenpence per set which the coachman here gains, there is a division of the spoil, the sets *not* supplied, but booked by the calendar. This is no fancy picture, but a hard fact, as I know to my cost, since I had a shoeing forge of my own, and which never paid, for the simple reason that I would not subscribe to the custom, and was often during my tenure of it openly laughed at by the coachmen whose patronage I must necessarily solicit.

London West-end practitioners who keep shoeing forges (or are kept by them) could say something of this evil, but for very shame the matter is suppressed.

Excessive competition is, doubtless, the source and main-spring of this system, but a great deal of indifference is shown on the part of employers. A marked instance of this came under my notice while employed by one of the most eminent West-end veterinary surgeons.

A Lord Chief Justice's horses, which had been shod at my employer's forge, were, without any reason being given, taken to another smithy, and I was deputed to write to his Lordship and complain that the coachman had taken them to Mr. — because he could have five shillings in the pound, or "what he liked," etc., "according to arrangement." His Lordship did not reply, and we lost his custom.

Some horse-owners entertain, rightly or wrongly, a very high opinion of their men's honour and integrity, while those who in many cases form a more correct estimate do not like to interfere or give themselves any trouble, belonging themselves to a class of Sybarites who do not like anything approaching to the uncomfortable where no *very* large amount of principle is involved, or the peculation is not *great* or *easily remedied*. Others, again, are absolutely *afraid* of their coachmen, and while expressing their disgust with the state of things, must pretend not to see, or the very valuable horses might suffer some injury. A not inconsiderable number of horses of course belong to ladies, the bulk of whom are victimised, and who are only allowed the use of their horses as a favour, some reason or other always cropping up why this or the other "oss" is out of sorts.

It is no use, as "East Anglia" suggests, for us to congratulate ourselves upon "our noble profession" while we remain blacksmiths, and we cannot expect the public to discriminate between the shoeing-smith who doctors horses and the doctor who shoes them.—Yours, etc.,

Brighton.

HAROLD LEENEY, M.R.C.V.S.

GRUNTING IN PROFESSORS.

DEAR MR. EDITOR,—I would crave your permission to be allowed to make a few remarks on Professor Walley's communications in the last VETERINARY JOURNAL, under the headings of "Grunting in Horses" and "Veterinary Politics." With regard to Grunting in horses I have not much to say, but would rather treat it from the comparative pathologist's point of view, and include Grunting in mankind, or rather professors—for some of those we now hear about appear to be far ahead of mankind in general. To some extent, Professor Walley's remarks about Grunting in horses are applicable to the same defect in man, inasmuch as it is indicative of cardiac defects; but it differs, again, in being emitted—not when "ribbed" (who coined the elegant word?), but on every occasion and in regard pretty well to everybody except the grunter himself. Grunting in some men (and in another domesticated animal) is almost a natural mode of expression, and as it is mimetic, there can be no doubt a grunting teacher begets a grunting pupil; therefore Grunting in man is a greater nuisance than it is in a horse. The Professor's second letter is nothing but a series of harsh grunts, without even the apology of being "ribbed." In his discontented humour he hits out wildly at everybody and everything, except the phenomenon of the age—Professor McFadyean—who, if his address to the students is to be taken as a proof, is even a more inveterate and ill-natured grunter than his senior, from whom, no doubt, he has borrowed the habit. Both grunt at the Council, at the examiners, and at the unfortunate members of the profession whom nature has not endowed with such transcendent abilities, the only grunt of satisfaction the young Professor gave being at the failure of the Royal College to obtain assistance from the Government in procuring a decent home. If the two Professors are as accomplished in their teaching as they are in grunting, truly their students must be considered fortunate. That the younger professor must be something far beyond anything the profession has ever produced hitherto, is evident from the statement made by the senior Professor, who asserts that he was offered and refused a position at a salary exceeding the FOUR figures—which would not be less, I infer, than £10,000. This does strike one with awe and wonder, and these must give place, eventually, to admiration, if not veneration. We, poor mortals, who have often to be satisfied with a salary less than the four figures, can only feel astonished that such a priceless personage should possess so much humility and such a spirit of self-sacrifice as to remain a third-rate teacher.

When Professor Walley grunts at the Council, and states that for the last two or three years the schools have been kept by it in a perpetual state of uncertainty and unrest, he is guilty of asserting what has no foundation in fact. Nothing has been done by the Council to affect the schools, and the curriculum and examinations remain now as they have been for more than two or three years. The Professor himself is the only member of Council who has attempted to upset arrangements, as his notices of amendments of bye-laws and alterations in the examinations are never absent from the notice-board. If he has so muddled himself as to fancy the Council has introduced these notices, then no one can help that. All that can be said is that it would appear the Professor is not satisfied unless all his students are passed; and the objects of his notices are to make the examinations so easy that totally incompetent men will receive diplomas. It is sincerely to be hoped that the Council will not sanction one of these alterations. The professor is wroth because the College will not adopt his views—therefore I suppose he fancies himself "ribbed," and grunts.

Much spurious sympathy is manifested by some professors for the students, but, from what I can see and learn, this sympathy is never extended towards remittance or diminution of their scholastic fees, poor though the lads are said to be. On the contrary, I am informed that excuses are seldom wanted to make them pay for extras.

The object of some teachers is to make as much money out of the students as they can, by getting them into the schools and out again as soon as possible. Their sympathy for them does not extend beyond this, I fear, as they express no sympathy for them when they become practitioners—on the contrary, it is disregard for their interests and contempt for their abilities.

As to the Professor's grunt at the examiners, that can be explained by surmising that they do not pass all his students, and so enable him to make room for more. The difference between Scotch and English practice is all nonsense, and only brought in to excuse a grunt. If two or three hundred miles should make such a radical difference in practice, then all I can say is that the teaching must be something extraordinary. The grunt at mistakes made by practitioners is not in good taste, no more than his other grunts are. When we know of the mistakes made by such talented persons as professors, and read the conflicting evidence they give in the witness-box, one is tempted to ask in what respect they differ from ordinary mortals.

When Professor Walley grunts at the Council, and accuses it of everything that is bad, he forgets that it is elected by the entire body of the profession of which he is a member, and that he himself has a seat at the Council-board, where he can state his grievances, and if they are substantial they will be remedied. If they are not to the advantage of the profession, then it is to be hoped they will be left unredressed. The Professor, we may hope, is not the only wise member of Council. With regard to his grunt at the army veterinary surgeons, I leave them to notice that if they think it deserves notice.

Finally, let me say that a carping, peevish temperament is not admirable in any man, much less in one who should be an example to the young men whom he instructs. To find fault or grunt does not demand any ability, and though it is also easy to assert that the advancement of the profession, etc., is dear to the grunter, yet something more is needed than mere lip service. Few grunTERS ever do much good, and, like the grunting horse, they are only to be valued at a reduced figure. The profession is pretty well grunted at by some of the professors: suppose we reverse things, and begin to find fault with them. They are not immaculate—far from it.

Might I ask what the majority of the professors, and especially Professor Walley, have done, especially in recent years, to promote the interests of the profession?

The profession does not live for the professors—this is my grunt, in imitation of Professor Walley.—Yours, etc.,

April 16th.

“COUNCIL-MAN.”

INFLUENZA AT WAKEFIELD.

DEAR SIR,—Unfortunately, being knocked off work, I looked at your Journal, and find there a mistake as to Wakefield being one of the first places in which the present scare about the “Pink-eye” is said to be so destructive. My impression is that there has not been a single case in the borough.

There has certainly been a great loss at Sharlstone Colliery, but what the greatest number of ponies have died from was not that contagious disease, but from bad management, many of the poor animals having the harness put on at 1 o'clock in the morning of Monday, and not removed until 10 o'clock on Saturday night following. This and want of food and water were the cause of the mischief.

They did get some Russian ponies, but they were bought in London, stived up in London, and then turned out on their arrival as soon as possible, and sent into the pit to meet with the usual bad management.—I am yours faithfully,

Wakefield, *March 8th.*

W. E. NAYLOR.

“A SUGGESTION.”

SIR,—Would you allow me to suggest (seeing through the letters to your journal that the profession seems to be rousing itself to a sense of its dignity) that you should publish in your columns reports of cases in which veterinary surgeons are discredibly engaged, as perhaps, though they fear not God, neither regard the public, yet they may display some amount of caution with the knowledge before them of the fact that the eyes of the profession at large will be turned towards them. I enclose you the report of a case* (cut from a local paper) occurring at the Hove Police Court, where a man was charged with working two donkeys in an unfit state, one of them with a bad sore on its shoulder, and both very weak. A qualified practitioner from Brighton swore that “the donkeys were equal to the load they had got and that no cruelty was involved in working them.” The chairman, accompanied by the witness, left the Court in order to examine them, and on their return the witness retracted his former statement entirely by saying that one of the donkeys was “tender on the spine,” and “not fit to go in the shafts.”

The chairman, in censuring the witness for his previous statements, said that he had never heard such evidence before; and to crown all, an “existing practitioner,” who, at the request of the bench, examined the donkeys, gave

* At Brighton, “Henry Frost” was summoned for working two donkeys whilst in an unfit state.—P.C. Fox also met this prisoner that morning with two donkeys attached to a cart, laden with coke. One of them had a bad sore on the shoulder, and both were very weak. They leaned against each other and could scarcely move.—Mr. . . . , veterinary surgeon, who gave evidence for the defence, said that he thought the donkeys were equal to the load they had got, provided the cart was loaded properly, and it would not be cruelty to work them.—General Shute left the Court to examine the donkeys, and the witness accompanied him. On their return into Court, the witness re-mounted the box, and said one of the donkeys was tender on the spine, and it was not in a fit state to go in the shafts. Any pressure hurt it. The chairman censured the witness for his previous statements, and said he had never heard such evidence before. Witness said he had spoken from the best of his belief; he had very little time to look at the donkey before. The chairman said witness had no right to say anything upon his oath which he had the slightest doubt about. Mr. Knight, a veterinary surgeon, at the request of the Bench, examined the donkeys, and said he was of opinion that one of them was entirely worn out, and unfit for work. In answer to the chairman, prisoner said he hired the donkeys a month ago, and they were then in the same state. The chairman ultimately intimated that the owner of the donkeys would be summoned, and prisoner was bound over in his own recognisances of £5 to appear on Monday next.

it as his opinion "that one of them was entirely worn out and unfit for work."

How can the public respect the profession as a body when they have the spectacle presented to them of an M.R.C.V.S. making such statements in a police-court, and being gravely censured by the "great unpaid," and worse still, his opinion "reversed" by a quack?

Will not people who look upon this case with an uneducated eye, think that one man is as good as the other, or as the democratic orator put it, "a precious sight better?"—I am, sir, your obedient,

"EMBRYO."

A CASE FOR CHARITY.

DEAR SIR,—Allow me to acknowledge, through your columns, the receipt of the following contributions on behalf of Mrs. Brosnan, and to thank the contributors for their kindness.

Painful and necessitous as is the case of Mrs. Brosnan, it is more than paralleled by that of the widow of an English veterinary surgeon who recently died in the county of Durham, leaving his wife and five children, not only unprovided for, but in the poor-house.

I mention this case, not with the direct object of soliciting contributions in aid of the lady and her children—though I shall be very happy to receive such if any of my professional brethren wish to contribute to so good a cause as the assistance of the widow and the orphans—but rather for the purpose of urging upon every member of the body corporate the advisability, not to say the duty, of joining the Defence and Benevolent Society; as even though any individual member may never require its assistance, he may be giving aid to others not so fortunate as himself.

Royal Veterinary College.

April 19th.

I am, yours truly,

THOMAS WALLEY.

Subscriptions in behalf of Mrs. Brosnan.

R. Rutherford, £1; H. Thompson, 10s.; — Constable, 5s.; Capt. Hayes, 10s.; C. Cunningham, 10s.; C. Philips, 10s.; Veterinary Staff and Students, R. V. College, £6; A. J. Owles, 10s.; H. W. Caton, £1 1s.; Jno. Bell, £1 1s.; W. Hack, £1; G. Goodacre, 10s. 6d.; J. S. Hurndall, 5s.; R. C. Edwards, 10s.; J. Fraser, £1 1s.; Mrs. A., £1; G. A. Oliver, £1 1s.; J. R. Cox, £2 2s.; T. Corby, £1 1s.; T. Gregory, £2 2s.; J. Donald, 5s.; — Campbell, Kirkcudbright, 10s.

TO CORRESPONDENTS.

EXISTING PRACTITIONER.—The Register of Veterinary Surgeons, just issued, contains the names of those who have been selected for registration.

F. HARVEY.—There are no special books which treat of grasses as influential in producing disease in cattle and other animals. In the different books on botany, the diseased condition of plants which prove injurious to animals is sometimes alluded to. See Berkeley on Fungi. There are papers in various agricultural journals on the same subject; but they are few and far between.

STOMATITIS IN CALVES.—It would be esteemed as a great favour if members of the profession who have cases of this malady in their district, would forward diseased portions, in as fresh a condition as possible, to the Brown Institution, Wandsworth Road, London, S.W. Important investigations are now being carried out with regard to it, and fresh material is needed.

THE REGISTER OF VETERINARY SURGEONS.—We are asked to announce that the Register of Veterinary Surgeons for 1883 is now published, price 2s., post free. Applications to be made to Messrs. Baillière, Tindall, and Cox, King William Street, Strand, London, W.C.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from T. Greaves, Manchester; H. Leney, Margate; T. W. Cave, Nottingham; A. W. H. Wirth, Utrecht; F. Harvey, St. Colomb; J. A. Nunn, A.V.D., Punjab; C. Parker, Bakewell; J. Lambert, A.V.D., Dublin; A. Lingard, London; E. E. Batt, London; T. Walley, Edinburgh; H. Jenkins, London; "Council-man;" J. B. Gresswell, Louth; W. R. Hagger, A.V.D., Woolwich; A. W. Hill, London; "Country Practitioner;" A. Bain, Liverpool.

BOOKS AND PAMPHLETS: *A. W. H. Wirth*, Negende Jaarverslag van Het Parc Vaccinogène Bij's Rijks Veeartsenijschool te Utrecht, 1881; *C. A. Piétrement*, Les Chevaux dans les Temps Préhistoriques et Historiques; *A. Barbou*, Le Chien, son Histoire, ses Exploits, et ses Aventures.

JOURNALS, ETC: *Archiv für Wissenschaftliche und Practische Thierheilkunde*; *British Medical Journal*; *Lancet*; *American Veterinary Review*; *Live Stock Journal*; *Recueil de Méd. Vétérinaire*; *Wochenschrift für Thierheilkunde*; *National Live Stock Journal*; *L'Echo Vétérinaire*; *La Clinica Veterinaria*; *Medical Press and Circular*; *Field*; *Lidskrift för Veterinär Medicin och Husdjursskötsel*; *Edinburgh Medical Journal*; *Archives Vétérinaire*; *Annales de Méd. Vétérinaire*; *Der Thierarzt*; *Revue Vétérinaire*; *Journal de Méd. Vétérinaire*; *Practitioner*; *London Medical Record*; *Proceedings of the Medical Society of the County of Kings*; *Mark Lane Express*; *Flood and Field*.

NEWSPAPERS: *Madras Standard*; *Madras Times*; *Freeman's Journal*; *Irish Times*; *Scotsman*; *Irish Sportsman*; *Manchester Guardian*.

TO CORRESPONDENTS.

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THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

JUNE, 1883.

GUNSHOT WOUNDS.

BY W. R. HAGGER, M.R.C.V.S., ARMY VETERINARY DEPARTMENT.

THE term "Gunshot Wounds" is applied to all those injuries which result from the direct action of missiles discharged from some of the various kinds of guns and rifles.

As the features, progress, and ultimate issue of these injuries are considerably influenced by the nature of the agents concerned in producing them, it will be well to consider some of the leading qualities of those projectiles which, in modern warfare, are the direct causes of most of the gunshot wounds likely to engage our attention in the field, viz., bullets and shells.

Rifle Bullets.—The various kinds of rifle bullets are much too numerous to admit of a separate description of each being given in this short paper; but speaking of these projectiles generally, they may be described as small masses of hardened lead, cylindro-conoidal in shape, with an average individual weight of about 450 grains, and having a diameter of about half an inch.

Shells.—The shells mostly used with modern field cannon are those known as "common" and "shrapnell."

A common shell consists of a cylindro-conoidal case of iron adapted to enclose a quantity of gunpowder, which is designed to explode on impact. The effect of the explosion is to shatter the iron case into a number of pieces of various shapes and sizes, which are scattered in all directions with great force.

A shrapnell shell is precisely similar in external appearance to a common shell. It is filled partly with gunpowder and partly with a number of spherical bullets. The powder inside the shell has no effect in propelling the missile, but is merely sufficient to burst the iron case asunder, and this it is arranged to do by being ignited by a time-fuse after the shell has left the gun, and while it still possesses enormous horizontal velocity. The velocity being, as a matter of course, equally possessed by the bullets within the shell, they pursue their onward course with great speed.

Bullet Wounds.—The lesions produced by a bullet penetrating the body vary according to the speed of the missile. A wound of entrance is observed to be circular in shape, with inverted margin, and somewhat smaller than the missile which caused it. If the part struck happen to well clothed with muscles, and the bullet enters perpendicularly to the surface, while possessing a high rate of speed, it may pass out, leaving a straight canal of even calibre all the way through. But if the missile should enter obliquely, it will be either diverted inwards and penetrate to a depth proportionate to its speed, leaving a large, hollow, winding track; or, as more frequently happens, it will merely penetrate the skin, take a superficial course, and travel a considerable distance—sometimes several feet—without entering the muscles at all. When a bullet has passed out, the wound of exit is usually a little larger than that of entrance, while its margins are decidedly everted, and not unfrequently small pieces of subcutaneous tissue are to be seen protruding from it. These slight differences in the features of an opening of entrance and one of exit may appear unimportant, but that they are not so is illustrated by the following case, taken from several of a similar kind that have come under my own observation. A small Cape horse belonging to a volunteer corps that was serving in Zululand during the war, was shot whilst out on a reconnaissance. The bullet penetrated the skin about three inches below the withers on the near side; taking a backward direction, it crossed obliquely over the spine in the middle of the back; from here it passed along the loins, and made its exit about three inches above the tuberosity of the ischium. From the time this wound

was inflicted to the commencement of the inflammatory process there was nothing to indicate the course the bullet had taken, and, considering the situation of the two openings, it was only natural for the rider to be convinced in his own mind that his horse had been hit twice. But a careful examination of the two wounds in the skin led us to conclude that they had been caused by the same bullet—a diagnosis that was amply confirmed in less than twenty-four hours, by a swelling which appeared along the whole course the missile had taken. Thus the horse was spared the pain of having his wound probed and explored unnecessarily.

Shell Wounds.—A fragment of a shell inflicts a ghastly, open, lacerated wound, and occasionally tears away a piece of the tissues opposed to it. Shell wounds are generally superficial injuries, owing, no doubt, to the direction taken by the pieces when a shell bursts, being at a more or less acute angle with the part wounded.

Treatment of Gunshot Injuries.—In order to establish a thorough knowledge of the nature and extent of gunshot wounds, they should be examined before inflammation and its attendant swelling have supervened. Any lodged missiles should be searched for and removed with the bullet forceps, if possible. This operation, however, is by no means such an easy matter as a mere theoretical acquaintance with the task might lead one to suppose. In a very large proportion of cases the buried missile is tightly held by surrounding tissues, or it has penetrated to such a depth, leaving a tract so irregular, as to preclude all possibility of ever getting it within the grasp of the forceps. In such cases the best, quickest, and least painful manner of extracting the lodged missile is by incision. When this course has been determined on, the operator has to be guided in deciding where to begin the wound of incision by the situation of the foreign body and the nature of the intervening structures. If the missile be lying within a few inches of the wound of entrance, the best plan is to merely lay open the track. If, on the other hand, it should be lodged close to the surface, at a considerable distance from the wound of entrance, it is obvious that a second opening should be made opposite to the seat of lodgment.

When circumstances are against the removal of a bullet, it may—indeed frequently does—become encysted, and remain for years, without causing its bearer any apparent inconvenience.

In respect to topical treatment, I have found that for these, as for most other kinds of wounds, antiseptic dressings are eminently superior to all other applications. Carbolic acid, in the form of carbolised oil, was extensively used in the infirmary at Ismailia, Egypt, where its antiseptic effects on large open wounds proved most advantageous. In addition to its antiseptic properties, carbolic acid is invaluable on active service for its deodorizing effects on the dreadful effluvia emitted by large sloughing wounds, such as are met with in the field, and thereby mitigating the intolerable and repulsive effects of flies and maggots. A solution of the chloride of lime is another very valuable agent in the treatment of these injuries, especially as an injection for deep unhealthy bullet wounds. Poultices and fomentations are, so far as my experience of gunshot injuries goes, not only useless, but decidedly objectionable. They soon become offensive, attract flies, and instead of being soothing, they irritate. Moreover, the materials for the manufacture of these remedies are not often obtainable in the field; and the time for their careful preparation and application can seldom be spared. Irrigation, employed at intervals of two or three hours, is sometimes beneficial when inflammatory action runs high, over a large surface.

It is scarcely necessary for me to mention that the thing most essentially necessary in the treatment of gunshot injuries, is unceasing attention to hygienic measures, not only as applied to the wounds themselves, but also to the cleanliness of the infirmary camp. Manure, with all pieces of lint, tow, or bandages used for wounds should be removed regularly two or three times a-day, and if possible covered over with earth.

Regional Distribution of Wounds.—In consequence of the target arc of the trunk being so much larger than that of any other part of an animal's body, wounds in this region usually predominate. Next in order of frequency are wounds of the head and fore extremities; while the hind extremities seem to suffer least.

Regional Fatality.—With the exception of penetrating wounds

of the cranium, the injuries most immediately fatal are wounds of the chest and abdomen. The instantaneous effect of a bullet penetrating either of these cavities, is to produce a tremendous shock to the nervous system. The horse trembles nervously, has a painfully anxious countenance; he stands as if fixed to the ground, and when made to move does so with a tottering gait; his respiration is laboured, and the circulation is feeble and agitated. He soon becomes pulseless, and finally drops and dies of syncope.

I have never seen a gunshot injury involving fracture of any of the large bones, but I am informed that they are attended by a similar state of nervous disturbance. They are, as a matter of course, always fatal.

Wounds of the feet are, I think, the most painful of all the injuries our patients can meet with in action. The density of the tissues of these parts has the effect of distorting a bullet so as to render its extraction with the forceps quite impossible. Inflammation of an erysipelatous nature supervenes, and if not put out of its misery, the patient rapidly succumbs to irritative fever of a most aggravated kind.

Lacerations involving tendinous and ligamentous tissues, as the flexors of a limb, are in most cases very obstinate injuries to treat. They degenerate into large gangrenous ulcers, which spread rapidly, discharging a foetid ichorous pus. The local irritation is inordinate, the horse making frequent attempts to gnaw the part. They are best treated with antiseptic dressings.

TRAUMATIC PERICARDITIS IN A COW.

BY WILLIAM CAUDWELL, M.R.C.V.S., WORKSOP.

ON the 18th of April last, I was requested to attend a six-years'-old short-horn cow, which calved about the middle of February, at which time my client bought her. He informed me that her illness commenced two days previously. *Symptoms*:—pulse accelerated, slight elevation of internal temperature, appetite impaired, lactation diminished, rumination suspended, bowels torpid, urine normal. Gave a saline aperient—c. Ol. Lini. et Ammon. Carb.

19th.—Pulse 100, strong and regular ; temperature, 105° Fahr. ; respiration quickened ; respiratory murmur and cardiac sounds normal ; no pain is evinced on percussing the chest, and she does not cough or grunt. The bowels have responded ; her appetite is a little better, and she drinks freely of oatmeal gruel. Apply clothing to body, and nurse well.

20th to 23rd.—Pulse 110 to 120, strong and regular ; tem. 104·8° to 106·4° on the 23rd ; respirations about 25 ; extremities cold. Diagnosis : Pericarditis. Prognosis : very unfavourable Gave Tr. Aconite, Spt. Æth. Nit. et Liq. Ammon. Acet. ; two and three times a day, and Potass. Nit. occasionally. Applied mustard liniment over the region of the heart.

24th.—Pulse, respiration, and temperature about the same ; expiration abdominal ; respiratory murmur normal in character, but increased in intensity ; cardiac sounds muffled on the left side, with dulness on percussion opposite the heart on both sides of the chest ; the heart-sounds are more audible on the right side, and a slight tinkling or splashing noise can be heard. The jugular veins are distended, and there is slight œdema of the dewlap. I usually find her lying down, but she rises without difficulty, and does not appear to suffer much pain.

25th.—Pulse 120, temp. 105·6° ; respiration laboured ; œdema more marked, appetite not so good ; she is wasting rapidly, and I see no chance of recovery ; but my client will not at present consent to have her slaughtered. Gave Potass. Nit. et Potass. Iodide.

26th.—Pulse 120, temp. 105°, appetite rather better. Gave Potass. Iodide.

27th.—Pulse 120, and feeble ; temp. 105° ; has not fed so well ; jugulars greatly distended, and the œdema is increasing.

28th.—Pulse and temperature about the same ; on auscultation slight splashing noise can be heard opposite the region of the heart, and there is dulness on percussion. She does not evince pain on pressing the intercostal spaces, neither does she cough or grunt. Gave Digitalis Fol. et Potass. Nit.

29th.—Pulse 120, small and feeble, but it has been regular from the commencement of the attack. Temp. 105·6° ; respirations 26 per minute and more laboured ; slight diarrhœa ; her ears and

horns have been cold throughout; the œdema of the dewlap and beneath the sternum is much greater, and she has not been observed to ruminate for some days. To-day the owner consented to have her killed.

Post-mortem Examination.—After removing the skin, a quantity of serosity escaped from the areolar tissue of the dewlap, and the abdominal cavity contained a quantity of straw-coloured serum of a faint odour; the liver was enlarged and the gall-bladder much distended. On opening the chest the pericardium was incised, and much serum escaped. A beautiful specimen of Pericarditis presented itself: the exudate upon the visceral pericardium was from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch in thickness, and was easily stripped off in layers; it was connected to that covering the parietal reflection by bands of lymph. I traced a perforation through the diaphragm and pericardium, to the outer surface of the upper part of the left cardiac ventricle. The muscular tissue of the heart was pale and watery-looking; its cavities were normal. The lungs were perfectly healthy. On examining the reticulum, a piece of galvanized iron wire, four inches long, was found protruding through its coats a few inches below the œsophagus. On laying the viscus open another piece was found, but it was shorter, fine, and twisted.

Remarks.—By experience, we know that the usual course which foreign bodies in the reticulum take is towards the heart (though exceptions to this rule do sometimes occur), and I think this can be partly explained by the anatomical conformation of this stomach. I can readily imagine that when the pointed extremity of a foreign body happens to be in one of the cells of the anterior face of the reticulum, at the moment the animal gets up or lies down, the immense weight of the rumen from behind may easily force the point through its coats and the contracted diaphragm towards the heart.

FOREIGN BODY IN THE LIVER OF A BULL. PYÆMIA.

BY THE SAME.

ON November the 2nd, 1881, my immediate attendance was requested upon a twenty-months'-old short-horn bull, the property of W. Jessop, Esq., of Forest Hill. On arriving at 1.15 p.m. the animal presented the following symptoms:—Pulse 84, great elevation of internal and external temperature, respirations about 60 per minute, and laboured expiration, attended with a grunt; a flow of frothy saliva from the mouth, visible mucous membranes injected, increased respiratory murmur, and pain evinced on pressing the intercostal spaces: before I arrived he had severe rigors. Treatment:—Gave a brisk cathartic, c. Spt. *Æth. Nit. et Tr. Aconite*, and left two doses of Spt. *Æth. Nit. et Tr. Aconite*, to be given at 3 and 4 p.m. Applied a stimulating liniment to chest.—7 p.m., symptoms about the same; repeated medicine and left two doses.

3rd, 7 a.m.—Symptoms about the same; I advised my client to have him destroyed, to which he readily consented.

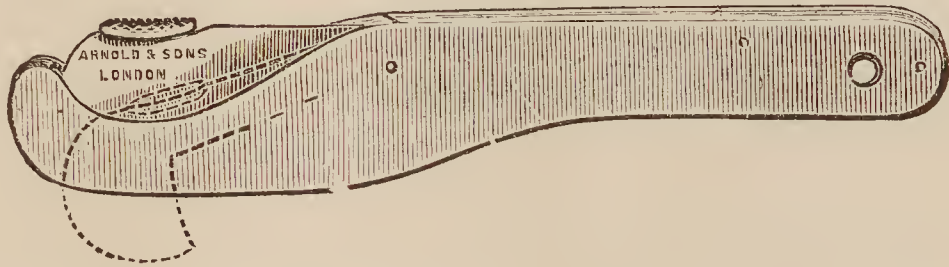
Post-mortem Examination.—Adhesions existed between the reticulum and liver; the latter organ was the seat of a large abscess, containing foetid pus and half a hair-pin two and a-half inches long. Both lungs were extensively diseased; their surfaces presented nodular elevations, and, on section, I found thrombi in some of the small branches of the pulmonary arteries, also hæmorrhagic infarction and pyæmic abscesses; the anterior lobes were most free from disease, but all portions of the lungs were more or less involved. A number of small tubercles were also apparent. The costal pleura showed slight traces of inflammation. Spleen and heart appeared normal; the kidneys were not examined.

Conclusions.—It would appear that a portion of the contents of the hepatic abscess had gained entrance into the systemic veins, and, becoming arrested in the pulmonary capillaries, gave rise to pyæmic Pneumonia.

NEW EMBRYOTOMY KNIFE.

BY R. R. COLE, M.R.C.V.S., HINCKLEY.

THE annexed woodcut represents a new form of embryotomy knife, and its advantages are—1st. It can be effectually used with the hand and arm in a straight position, whereas with the ordinary slide knife, the wrist must be somewhat bent in order to bring the cutting edge to bear; this, in a constricted passage,



is always difficult and sometimes well-nigh impossible. It is particularly useful in making the longitudinal incision in the skin, previous to the removal of a fore limb.

2nd. The *perfect safety*, as, should the animal struggle or suddenly drop, the instant the operator leaves off using it the cutting edge disappears.

It is manufactured by Messrs. Arnold and Sons, of London.

SWINE FEVER.

BY W. ALSTON EDGAR, M.R.C.V.S., DARTFORD, KENT.

(Continued from page 331.)

Semiology.—This usually draws the attention of the attendant and veterinarian to the animals, when some or all of the following symptoms will be observed: severe rigors when driven up from the straw; impaired appetite or complete anorexia; occasional vomiting; cold extremities and ears, the latter pendent; surface of body intensely hot; fæces relaxed, or diarrhœa, the fluid of a brownish yellow hue, perhaps blood-stained, or the alvine excretions may be hard and coated with blood and mucus; great pain on pressure to abdomen; a painful suppressed cough exists when the pneumonic or laryngeal form is developed; quick, difficult respiration, together with nasal and lachrymal

catarrh, which aggregates around the nostrils and eyes; the former is sometimes frothy, containing blood. In acute cases the animals may be plethoric, but in the more chronic form a marasmoid condition exists, associated with quick, weak pulse; great lassitude, a rolling gait, partial or complete paralysis, an enlargement of inguinal and submaxillary lymphatics. In a small per-centage of cases cerebral symptoms are manifest. The temperature is, except in very mild cases, very high. I have noted 108.6° , generally 104° to 107° . The highest noted by Professor Axe is 106.8_{\circ} , that by Dr. Osler 110° in two cases in several 109_{\circ} and 108° . The temperature is, however, no especial aid in establishing the existence of an outbreak; but in the subsequent daily examinations it is most useful in enabling us to detect the invasive period at its very onset, and to get the animals further isolated or slaughtered. The changes in the skin constitute one of the leading features of the malady.

These, however, may be entirely absent, as is evident in following different observers; but much has, I believe, been passed over in the black pig with coarse bristles that would have been noted in the white animal. These changes are fairly regular, and usually commence from the fifth to the eighth or ninth day of infection. I think the seventh is about the mean in most recorded experiments. The early form may be a general efflorescence, or, as in most cases, petechiæ appear, first on the protected parts, viz., inside of the thighs, axilla under the ears, and rapidly extending to all parts of body. The general redness, where this has been the commencement, soon gives place to circumscribed hyperæmic areas; the spots vary in diameter from one-quarter to three-quarters of an inch. If pressed upon at this stage, the spot blanches, but immediately on the removal of pressure assumes its original hue. In some animals the skin lesions are arrested at this stage, and the typical form is not represented; but where the hyperæmia continues well defined, inflammatory tissue changes commence. (I believe the period between the various stages is as regular as any other condition in the disease; but I have been unable at present to mark the special time, as all my observations have been made in ordinary outbreaks, under the control of the local

authority.) The epidermis is raised, and a serous exudation takes place under the epithelium; in a given time this is changed to an opaque, caseous-like fluid (if removed with a scalpel a blood-red equivalent area is exposed). Up to this time the papulæ are surrounded by a hyperæmic zone; again a period, and a reddish-brown crust commences to form in the centre of the vesicle, which may or may not extend to its margin. As this crust thickens and extends, the opaque fluid is hidden: if the animal lives, a *well-marked cicatrix is formed under the crust*, which generally becomes black on its surface, from the filth in which the animal lies. When the hair is very thick and the skin black these crusts are more readily felt than seen, except where a careful examination is made. In some outbreaks the cutaneous lesions assume a confluent condition, in which many small areas coalesce, and form a large necrotic patch, sometimes four or five inches in diameter; severe sloughing of the integument, ears, etc., then takes place.

Symptoms.—In some cases the cutaneous form is intense, and the enteric extremely modified, in the same animal. I have observed the severe dermic form of malady in from sixty to seventy per cent. of cases, and its Varioloid nature has made a strong impression upon me, to which I shall presently revert. Professor Axe is the only worker at the malady who has given a detailed description of the true skin form. Dr. Voyles, in thirty *post-mortem* examinations, does not mention any dermic changes. Dr. Osler notes rose maculæ in eighty per cent. of cases, and slight papulæ in twenty per cent. The case of “Eruptive Fever” recorded by our Secretary in 1875 was doubtless the well-marked skin form of “Swine Fever,” and, as is not infrequently the case, the intestines were not much affected. The nasal catarrh and hypostatic lung congestion indicated the pneumo-dermic variety.

We have in the foregoing conditions a ready distinction from the sporadic diseases frequently reported as “Swine Fever,” such as Urticaria or Erythema, in which there is but a temporary rise of temperature and transient hyperæmia of skin, besides the absence of general prostration, loss of appetite, and fatality.

The purple condition of the skin, in occasional cases of Apoplexy, is generally intense over the abdomen only. Probably

only one animal is affected, and it is in a state of coma, the temperature normal or below it ; the attack is also very sudden, and generally after a hearty meal.

Post-mortem Appearances and Pathological Anatomy.—After death, the skin becomes more discoloured, and parts of it assume a greenish-purple or gangrenous appearance. In the subcutaneous connective tissue small or large ecchymoses exist, approximate to the superficial lesions, and are thus distinguished from Anthracoid extravasations. The microscope reveals œdema of the papillæ, with plugging and rupture of the capillaries ; where the crusts are removed the corium is denuded of epithelium ; the connective tissue is distended with fibrinous exudations ; and the sudoriferous glands are swollen, and sometimes filled with blood corpuscles. The localized superficial necrotic condition of the skin is well illustrated when the carcase is scalded and scraped. Where the crusts existed there is a circumscribed ragged *depression* of an ink-black colour. This enables us at once to condemn the carcase. Beyond the integument, the principal pathological changes are found in the intestines, lungs, pleuræ, lymphatic glands, and—in a minor number of cases—in the mouth, pharynx, stomach, spleen, peritoneum, and liver. The kidneys seldom present any but hyperæmic changes. On abdominal section, evidence of Peritonitis may exist, excess of peritoneal fluid containing flocculi of lymph, serous ecchymoses, frequently attachment of cœcum to colon, the walls of which are greatly thickened, in some places perforated. Circular, dark-grey, and somewhat elevated patches are seen through the serous coat of the large bowels, within which, upon the mucous membrane, are the peculiar protuberances which characterize the affection. These vary in number and diameter, like the papulæ on the skin ; they are elevated in different degrees from the surface of the mucous membrane, the centre being the highest point, and there is a somewhat concentric appearance, thinning towards the circumference. These crusts are of a dirty-yellow or greyish-white colour. Upon the removal of the crust the denuded mucous layer is exposed. These excrescences in some cases exist in such enormous numbers that, together with the œdema of the intestinal walls, the lumen of bowel is almost occluded. Mem-

branous diphtheritic deposits are sometimes present in addition, covering the whole mucous surface. Preceding this ulceration and proliferation of epithelial elements, the mucous membrane is intensely congested, either general or localized. In the small intestines hyperæmia is less frequent, and when present less severe ; but in some cases well-marked ulceration is present in them, though the large crust-like formations I have never seen in the latter. The most intense condition is invariably found at the ileo-cæcal juncture on the large side. The degenerative changes involve, in many instances, not only the mucous membrane, but muscular and peritoneal layers. Dr. Klein remarks that he found ulceration in one case only of the small intestine ; this was quite different in character from the lesions in the large bowel, being pit-like, and surrounded by prominent swollen mucous membrane, as in human Typhoid. The ulceration of Swine Fever is distinguished from the latter by having "absolutely nothing whatever to do with the lymphatic follicles." In the first stage of human Typhoid, oblong prominent papulæ, or patches of swollen lymph follicles, exist, surrounded by tumefied mucous membrane.

In the next stage the swollen patches die, and are discharged as a slough, leaving pit-like ulcers bordered by elevated overhanging mucosa ; this bears a strong contrast to the crust formation so characteristic of Swine Fever ulceration. During the ulcerative process many of the superficial mucous capillaries become distended and ruptured, producing the ecchymoses often observed. The localized epithelial cells become swollen, and burst through the swelling of the nuclei ; the lymph spaces around Lieberkühn's crypts are swollen, and the latter glands or follicles are filled with mucous elements. Where the ulceration is intense the follicular epithelium becomes decidual ; the submucous often ecchymotic from capillary hæmorrhage ; and general œdema tissue is takes place in the muscular layers of the bowel, producing the thick, leather-like condition. The lymphatics of the large intestines are tumefied and hardened, and when section is made they appear hyperæmic, the cortical portion frequently being of a deep-red tint, from capillary hæmorrhage. Considerable inflammatory changes exist in the gland structure. The

bronchial and submaxillary glands present the same appearance when the pneumonic form exists. There is a great diversity in the records of different observers with regard to pneumonic complications. Dr. Voyles, in America, found in thirty *post-mortems* at one outbreak, "in every case, without exception, disease of the lungs was present, in degree from slight hyperæmia to complete softening from suppurative inflammation." In Dr. Osler's experiments in the same country, only twenty per cent. were pneumonic. Professor Axe says, "Pulmonary congestion, more or less extensive œdema, and Apoplexy, are very commonly met with." "The ordinary results of Pneumonia, as consolidation and softening, are not seldom to be observed." In an outbreak where nearly seventy animals died I observed only one case of Pneumonia, and the symptoms during life did not indicate lung disturbance. The dermic and enteric form in these cases was very severe. Pleurites, Pleuro-pneumonia, or Pneumonia, may exist together; the thorax contains serum and lymph, or patches of opacity only exist on the pulmonary pleuræ; isolated lobules of the lungs may be affected, giving them a Pleuro-pneumonic appearance; sometimes the whole lung is hepatized and undergoing softening; and œdema of the interlobular tissue, with blocking of bronchi with mucous elements, some of the lobules becoming hard, friable masses. There is occasional Pericarditis. Parasitic Broncho-pneumonia is distinguished by the presence of *strongylus paradoxus*, with excess of mucus in the bronchi; also during life by the soft, mucous, incessant cough. Ulceration has been observed in the buccal membrane, also in the fauces and pharynx; œdema of the mucous membrane and follicles is commonly noted. Professor Simonds noted cases with diphtheritic membrane in the fauces and pharynx. Dr. Osler also records one case with similar lesions in the nasal passages, larynx, and pharynx. In the stomach there are occasionally large, hyperæmic, ecchymotic, or ulcerative patches seen in the mucous membrane, sometimes involving the submucous tissue; the peptic glands are tumid, the swollen epithelium almost closing them. The spleen is enlarged in about ten per cent. of cases, and is nearly always darker than normal. The liver frequently presents a dirty-yellow

hue, the margins somewhat rounded, and the capsuli raised with nodules, which on section present a caseous appearance; infiltration occurs in the interlobular connective tissue, and accumulations of lymphoid elements in the acini. Ecchymoses in the brain and spinal cord are noted only by Schmidt.

Placed under the Contagious Diseases (Animals) Act, 1878.—Happily the disease was, in 1878, placed under the Contagious Diseases (Animals) Act, and the order cited “The Typhoid Fever of Swine Order;” which was, however, amended in 1879 by the “Swine Fever Order” now in force, to which I need not further refer than to remark, that as slaughter of affected animals is compulsory, we are compelled to turn our attention to a prophylactic rather than curative agency. Under this head we may review suppressive and preventive measures.

Recognition. Giving Notice. Quarantine Period.—It is needless to again point out the great importance of early recognition, when the Act demands that immediate notice shall be given of the existence of “Swine Fever,” the pigsty or farm declared an infected place, and quarantine observed for not less than twenty-eight days; all affected animals from day to day to be slaughtered and buried six feet deep, covered with quick-lime or other disinfectants, and earth; all vehicles used for the transit of diseased animals should be disinfected.

Suppressive Measures.—Beyond this compulsory sanitation, it is necessary to take the temperature of the whole herd, and any animals above 103° F. should be placed in an isolated part of the yard until the development of the affection. It is further advantageous, where possible, to divide the remaining herd into small lots of four or five, and put them into separate pens, as far removed as possible. This renders the daily examination much easier, and gives some slight chance of escape; although I think that ninety per cent. of those exposed to infection become diseased to a greater or less extent. In some cases the external evidence—including temperature—is too slight to enable us to declare them affected, yet a *post-mortem* examination will reveal the enteric form well marked. I may claim your indulgence for a digression to cite a case. Three valuable breeding sows were in an infected place, but in separate yards, drainage, etc., being com-

pletely divided ; they were of necessity fed by the same attendant, but with separate pails, etc. An almost daily examination of them was made before the remainder of the herd was visited. At the end of the first week the temperature of one sow rose about one degree. A very careful examination was made of her skin (black), and one small vesicle only was found on her side. Her habits, appetite, excretions, etc., were normal. Slaughter was ordered. The temperature of the other sows was taken periodically, and was never found above normal. They appeared in perfect health until the end of the outbreak, viz., eighteen days, when the owner had them slaughtered for market-pork. The intestines were examined in each case, and found diseased (I do not think we are justified in passing an animal out of an infected place for slaughter as food without a *post-mortem* examination). A liberal use of carbolic acid or chlorinated lime about the pens, walls, and especially drains and *water-tables*, is necessary ; also the free liberation of chlorine or sulphurous anhydride in the closed pens. The alvine excretions and uneaten food are a source of danger in extending the disease to neighbouring farms, etc. After removal of all diseased animals, the manure should be placed in a large heap to oxidize, and the surface covered with a coating of hot lime ; all pervious material—such as old woodwork, soft bricks, or paving—should be destroyed. Disinfection for “Swine Fever” must be more thorough than for any other malady. The transit of dogs, cats, rats, mice, etc., should, if possible, be avoided in an infected place. Even birds may be a source of danger, in hopping about a diseased animal’s pen, and then flying off to a neighbouring yard and putting their feet into the swine troughs.

Prophylactic Measures.—A true prophylactic for Swine Fever would be a grand scientific discovery, as the losses from the malady in this country and America, especially the latter, are enormous. Professor Law, of Cornell University, tersely remarks, “The highest success must attend such measures as will stop the production of the poison and destroy that which already exists.” Our “Swine Fever Order” has at present done little more than show how extensively the disease prevails in many counties ; but the returns must not be altogether taken to

imply that "Swine Fever" exists much more extensively now than in the past few years, but that existing disease is more frequently recognised and recorded. Yet the statistics do not from month to month show any marked diminution: until the last return or so, the only change has been an increase.

Medicinal Agents.—Some medicinal agents have been recommended as preventives, such as sulphur, the sulphites, charcoal, yeast, etc., but it is extremely doubtful if any agent would arrest the action of the *materies morbi*, were such passed into the protected system. This is the only certain demonstration of infection and protection, as an animal may be exposed in the ordinary course to infection for some days, and yet one particle of virus never gain access to the body.

Protective Inoculation.—I shall be much interested in hearing a discussion on protective inoculation. This operation has been very freely resorted to in past years for Variola Ovina and Pleuropneumonia, and more recently Anthrax. The two former have been freely discussed at most of our medical societies. Since the experiments and investigations of Greenfield and Pasteur on Anthrax, and protective inoculation for it, the subject has acquired a freshness, and demanded the attention of all pathological workers. Dr. Klein, in 1877, isolated the bacillus of "Swine Fever," and proved its specific nature by cultivating it to the eighth generation; then inoculating pigs with the somewhat attenuated virus, it was still capable of producing the disease. The bacillus is described as somewhat thinner than *Bacillus anthracis* or *subtilis*; it also differs in possessing a moving period; otherwise its development under cultivation is similar to that of *Bacillus anthracis* with which everyone is familiar. Some time since, in comparing the address of Pasteur at the International Congress, 1881, with the work of Dr. Klein in the cultivation of "swine bacilli," I was convinced that if the latter could be extended, a prophylactic might be found for "Swine Fever" in this country. Accordingly, upon ascertaining subsequently that the Royal Agricultural Society again intended to make a grant for veterinary investigation, I begged their consideration for the establishment of some experiments to continue from Klein's eighth generation until a vaccine (like Pasteur's *vaccin*

charbonneux) was obtained sufficiently attenuated to be used with safety, and yet to confer immunity from Swine Fever. The Society, however, expressed their determination not to continue the experiments at present.

Immunity after the Attack.—It has been noted by those breeders who have suffered much from the affection in America that animals which recover are seldom attacked a second time. This is probably the rule, as in most zymotic diseases: exceptions are, of course, on record. Dr. Osler inoculated two pigs: both animals became affected, although slightly. At the fortieth day, when both had apparently regained perfect health, a second inoculation was performed: both animals succumbed to the severe form within twenty days. The inoculation of all young pigs, say one month old, could be carried out by an organized staff in each district, as in human vaccination. It seems impossible for our profession at present to take the initiative in experimental research. The difficulties of such an undertaking are obvious, and, unfortunately, we are not stimulated by liberal Government grants, as in other countries; the liberty of investigation is also much curtailed by the Vivisection Act.

Pasteur's Work on "Rouget."—It appears, from a brief annotation in the medical journals, that Pasteur is now conducting some experiments, with the view of obtaining a protective vaccine for a disease known in France as "Rouget," which appears to possess some of the characters of "Swine Fever." The virus is fatal only to pigs and rabbits. ("Swine Fever" has been transmitted, by Professor Law, to rabbits and a sheep, and from them again to pigs. Dr. Detmers claims to have affected heifers in a slight degree: in ordinary outbreaks all other species may be exposed with impunity to the infection.) But the bacillus seems morphologically to resemble that of Fowl Cholera, rather than Anthrax or Swine Fever. If so, the diseases are probably distinct, and we shall not in this country gain practically by the investigations.

In conclusion, if I have not exhausted your patience, I ask you to discuss what "Swine Fever" really is. We are able to place it in the zymotic group or family, but here our power of classification at present ends.

Query as to the "Varioloid" Nature of Swine Fever.—Are we agreed that it is not "Typhoid Fever"? Clinical and anatomical evidence is against it being such. Calling it Pneumo-enteritis Contagiosa does not help us: we have seen that this designation is partly fallacious, when the lungs are normal, as they are in at least fifty per cent. of cases. It must then be Enteritis Contagiosa, ignoring the most constant dermic lesions.

Instead of an endeavour to manufacture a new name for an old disease, may it not find a home with the Variolæ, variety *Suillæ*? Variola prevails in the human family almost all over the world; in the equine, bovine, and ovine species it is also well known; but, strangely enough, in the very widely distributed porcine family it appears almost unrepresented. There are no clinical records of such a malady in our modern literature except Mr. Boughton's case at Hounslow: that has been shown to resemble "Swine Fever." The author of "Veterinary Sanitary Science" places "Variolæ Suillæ" in the list, but gives no original evidence of the malady, simply enumerating the symptoms of the ovine form, and saying, "In the pig the malady follows a similar course, and has similar terminations;" also in his elaborate paper on "Human and Animal Variolæ," published in the *Lancet*, vol. ii., 1880, the human, equine, bovine, and ovine varieties are reviewed in every detail, but the poor pig again has to be contented with a few Continental records, which may possibly have been confounded with the disease so rife on the Continent, represented in our "Swine Fever." The erratic fatality of Variola may be compared in the horse and sheep; in the former quite an innocent affection, in the latter terribly fatal. So much for the negative side; for the positive, some evidence of resemblance can be adduced, and all due allowance made for the many modifications of the affection which may be cited against Typhoid on the one hand and Variolæ on the other. The points I desire to hear discussed are—

The specific nature of the malady.

The fairly regular incubative period.

The extreme regularity in the appearance of the cutaneous rash, and in its typical form the development of Varioloid characters, viz., the rose-tinted maculæ, the vesicle followed by a

pustular and crustaceous stage, and subsequently a well-marked cicatrix.

I conclude with an extract from a paper by Professor Axe, published in the *Veterinarian*, vol. xlviii., on "Typhoid Fever of Swine":—

"From the last-named source (vesicles) the virus may be collected in large quantities, in the form of a thin, transparent, colourless fluid, *not unlike that which is furnished* by the vesicles of Small-pox and Sheep-pox. Physically, so far as the unaided eye can determine, the properties of this fluid are in every respect identical with those of Small-pox virus, and its contagious principle is no less potent." Again, "The vesicle dries into a thick, dark-grey crust, similar to that of Sheep-pox; indeed, cases have come under my notice where, but for the characteristic difference of the skin itself (sheep and pig skin), it would have been difficult, if not impossible, to distinguish between the crusts."

THE GERM THEORY OF DISEASE.

BY JAMES LAMBERT, F.R.C.V.S., INSPECTING VETERINARY SURGEON FOR IRELAND, A.V.D.

(Continued from page 318.)

In 1879 Professor Toussaint, of the Toulouse Veterinary School, discovered the bacterium of Fowl Cholera, a disease which annually causes great havoc in the poultry yards of France. This discovery turned M. Pasteur's attention to the malady. He cultivated the bacteria which caused it in suitable fluids, and in doing so found out what was indeed important, viz., his method of attenuating bacteria, or as he calls them, "microbes." But before going further let us examine the process at some length, as it will show what M. Pasteur and his disciples mean by "cultivation." He took a minute drop of the blood of a fowl about to die of Chicken Cholera, on the end of a delicate glass rod, and put it into pure chicken broth, of course excluding all air germs, and having previously by effectual means made it sterile, or, in other words, barren, or free from germs. Then the chicken broth into which the infected drop has been introduced, is

placed in a temperature of 25° to 35° C. or 77° to 95° Fahr., and it soon becomes cloudy from the multiplication of the microbes of the infected drop. The microbes are shaped like the figure 8. From the vessel in which this first cultivation has been made he takes another very small drop, not more than can be carried on the point of a glass rod as sharp as a needle, and touches with the point another vessel of pure and sterilized chicken broth. This in its turn becomes cloudy from the rapid multiplication of the introduced microbes. You deal in the same way with a third culture vase, with a fourth, and so on, up to a hundredth, or even a thousandth with the same results. Now you will find that if you inoculate with even the hundredth or the thousandth of these culture preparations you reproduce the original disease as strongly and as virulently as ever. These culture preparations have been thus far made one after the other without interval. Now let us suppose that we allow intervals between each culture ; say that between the hundredth and the hundredth-and-first we allow the liquid to rest a fortnight, or more, even up to ten months. If we compare the virulence we shall find that each delay is followed by a weakening of the next culture, so that, if we now inoculate, the virus is not so powerful. With the cultivation thus obtained by an interval we make another, and we find that each successive interval causes a weakening of the powers of the disease-producing microbe, and we therefore perceive that it is possible to prepare a culture of varying degrees of virulence. We can thus by successive cultivations with intervals between each, weaken the powers of virulence of the microbe to any degree we wish, and at last we have it fit for what M. Pasteur calls "vaccination" with no ill-effects, and yet it confers immunity from another attack of the disease. It is necessary to note that, if we have arrived at a certain degree of strength of the microbe, and the cultures are still conducted without intervals, *that* strength is maintained ; but given another interval, and weakening ensues. To recapitulate in a few words, then ; if each cultivation is carried on without intermission we have the same strength of the bacteria kept up, but give intervals between each cultivation and they are gradually weakened or "attenuated," until at length they lose their virulence, and a

little further, to use M. Pasteur's own words, "we touch the principle of vaccination."

What causes the weakening, or, as M. Pasteur calls it, the "attenuation" of the bacteria or microbes produced by cultivation? He ascribes it to the oxygen of the air, and he continues: "The oxygen of the air would seem to be a possible modifying agent in the virulence of the microbe of Fowl Cholera, that is to say, it may modify, more or less, the facility of its development in the bodies of animals." He asks, "May we not here be in the presence of a general law applicable to all kinds of virus?" and he goes on to say, "We may hope to discover in this way the vaccine of all virulent diseases."

To give a *resumé* of the principal points we have noticed, we may say:—

1. That all transmissible—and very probably many, if not all—specific diseases are produced by living organisms.

2. That *most* of these diseases are caused by microscopic organisms, collectively called microbes or bacteria, which may be of different shapes, such as round, or rod-like, or oblong, or spirally coiled, or figure of eight, etc. I have just said, "*most* transmissible diseases," because there are transmissible maladies, such as Measles in the pig, and Mange, for instance, and others, where a microscope is scarcely necessary to detect the disease-producing organism.

3. That the bacteria are supposed to be of low vegetable life, that they are more or less capable of movement, and that they have the power of rapidly multiplying themselves when they meet with suitable conditions.

4. That their spores, or germs, or seeds, whichever we like to call them, are very tenacious of life, but that their parent-organism, the bacterium, is readily destroyed by a comparatively low temperature, very often as low as 140° Fahr. It is a subject for great surprise to some people that contagious maladies break out long after the original disease has left a locality; but if we conceive the germs or seeds as readily springing into life, like a grain of wheat, for example, when they meet with suitable conditions, we shall perceive that there is nothing of the marvellous about the matter, nor is there any absolute necessity to fall back upon spontaneous generation for an explanation.

5. That bacteria are so extremely minute that they, and also their germs or spores, can be very readily carried about in the atmosphere. The *greatest attention* is invited to this observation as bearing upon outbreaks of contagious diseases amongst men and animals.

6. That each transmissible disease has its own particular living organism which cannot be spontaneously generated.

When we look at the history and progress of contagious and infectious diseases, and when we see that there is a period of incubation or hatching between the exposure to infection and the manifestation of the malady, we presume that the disease-producing organisms are then multiplying themselves until they become so numerous as to make their operations apparent. In short, it is difficult, in the light shed by the germ theory, to conceive how these diseases can be produced in any other way.

Some of the principal diseases of the domesticated animals, due, we may assume, to the presence of bacteria or microbes are, to employ the common names, Cattle Plague, or Rinderpest; Splenic Fever, a form of Anthrax; Quarter-ill, or Symptomatic Anthrax; Horse Sickness in South Africa, a form of Anthrax; Foot-and-mouth Disease, Contagious Pleuro-pneumonia of cattle, Texas Fever of cattle, Tuberculosis, Variola, or Small Pox; Glanders and Farcy, Influenza in horses, Rabies, Distemper in dogs, Swine Plague; and there are, of course, many others.

As it is impossible this evening to notice all the above-named maladies in the time at our disposal, I will only offer remarks on what at present appears to us the most important and practical, viz., Splenic Fever, "Horse Sickness," Tuberculosis, Foot-and-mouth Disease, Contagious Pleuro-pneumonia of cattle, Glanders and Farcy, and Rabies.

Let us begin with Splenic Fever, which is a form of Anthrax, the most widely diffused disease of our globe. M. Pasteur, after his success with Fowl Cholera, turned his attention to Splenic Fever, or Charbon, as it is commonly called in France, and which annually causes enormous losses in cattle and sheep in that country. It is now a rare disease in England, but centuries ago it was very common and destructive. It depends on the presence in the body of a bacterium called the *Bacillus Anthracis*, and is a

contagious malady. M. Pasteur cultivated the *Bacillus Anthracis* under the influence of oxygen, and it was thereby so weakened or "attenuated" that it has been by him largely used for protective inoculation, with, he firmly believes, most satisfactory results. He also believes that this "vaccination" protects against natural attacks of this awfully destructive Splenic Fever, but his conclusions are vigorously contested by the celebrated German physician and experimentalist, M. Koch. A rather bitter controversy is going on between them, but at present the weight of argument seems to be greatly in favour of M. Pasteur. Much good may arise in various ways from this conflict of opinion.

We must not forget to say, that M. Pasteur ascribes an important part, in sometimes causing Splenic Fever, to earth-worms, which he has proved bring up disease-spores, or germs, from the deeply buried carcasses of animals dead of the malady, even for months and years after interment. He has demonstrated that such germs being swallowed with the food by healthy animals grazing over the graves, have communicated Splenic Fever. This is a suggestive fact in dealing with contagious maladies.

I was in Natal in 1879, and again for ten months in 1881 and 1882, and there saw very many cases of that terribly fatal disease called the South African *Horse Sickness*. It is a form of Anthrax, and is different from any disease we see, except on very rare occasions, in this country. In many cases of it horses go out of the stable to work apparently quite well, are in a very short time suddenly taken ill on the road or plain, begin to breathe rapidly, froth at the nose, and sometimes within half an hour are dead. It is a disease generally of low-lying ground, and is malarious in its origin. We now know that malarious diseases depend on living organisms, or bacteria. Like the other diseases of which the Germ Theory is supposed to be an explanation, one attack confers immunity, and an animal which has survived the Horse Sickness is said to be "salted," and therefore worth a considerably enhanced price when offered for sale. There are many curious facts connected with this disease, "Horse Sickness," about which you will find rather an exhaustive paper of mine in the VETERINARY JOURNAL for February, 1882.

Not long ago Dr. Koch announced his investigations into the nature of the Tubercle Bacillus, which he has isolated and cultivated, and which he maintains is the cause of *Tuberculosis*, or, as it is commonly called, Consumption. It is calculated that tuberculous disease causes one-seventh of the deaths of the human race. It is, as you know, a common enough disease in cattle, and M. Koch's discoveries in connection with the Tubercle Bacillus have led very many pathologists to consider the malady a transmissible or infectious one; in fact, it must be stated that opinion is decidedly tending in that direction. It is thought probable that not only may it be transmitted amongst people living together, but that also it may be communicated to mankind by the consumption of the milk and flesh of tuberculous cattle. Whether Tuberculosis is infectious or not in the British Islands is still a much-disputed point in the medical profession. It is regarded as infectious in Spain, Italy, and other parts of Southern Europe, and great precautions with regard to disinfection are there taken after a fatal case. The weight of evidence of our highest medical authorities on the subject appears to show that they are at present inclined to think that only in rare and exceptional cases is it infectious within the limits of the United Kingdom.

It is demonstrated that Tubercle can be given by inoculation from man to the lower animals, and from these again to each other. Dr. Kammerer, the City Physician of Vienna, has recently reported that Tuberculosis is in very many instances communicated to mankind by the flesh and milk of tuberculous cattle, and he states that he regards the infection by this channel as being quite as fruitful a source amongst the young as the heredity to which it is usually ascribed.

Professor Toussaint, who has devoted much time and attention to the question, thinks it very probable that if children, and even adults, were inoculated with Tuberculosis, very few would escape infection. He says that Tuberculosis of mankind is exactly the same as that of the ox or cow. Of this he has convinced himself, by administering to animals human tuberculous matter, and by inoculating them with blood from tuberculous human subjects. Like the Tuberculosis of the cow, that of man is, he

continues, inoculable through the digestive canal, and by blood and secretion fluids ; and it always presents identical characters. He further states that true Tuberculosis, no matter whether derived from man, the cow, pig, or rabbit, can be reproduced in an infinite series with absolutely identical characters ; and passes from animal to animal without being impaired in virulency ; nay, more, it becomes all the more energetic and rapid in its action, the more frequently it is inoculated. ("The Contagiousness of Tuberculosis. By Professor Toussaint, Toulouse Veterinary School ; in the VETERINARY JOURNAL, June, 1882.) From these opinions from such high authority it will be seen how great a subject for investigation Tuberculosis is, and how interesting it is to us as veterinarians, not only as a disease of cattle, but also as a question to be attentively considered in relation to our meat and milk supply.

Foot-and-mouth Disease, or the Vesicular Epizootic, is a very contagious disease, and may well be mentioned this evening, as it is now at work in England and Ireland. Besides affecting cattle and sheep, it sometimes attacks pigs, goats, horses, and other domesticated animals, as well as human beings. All kinds of causes have been named as producing Foot-and-mouth Disease, such as changes of weather, bad sanitary conditions, overcrowding, fatigue, bad food, etc. It is, however, almost needless to tell you that it is becoming the general opinion, as it is the opinion of the most careful observers of disease, that it can only be caused by contagion or infection, and that it cannot be spontaneously generated. On the question of the spontaneous generation of diseases I shall have a few words to say before we conclude.

We have every reason to believe that specific living organisms or germs are the cause of Foot-and-mouth Disease. The virus is supposed to be very tenacious of life, and to remain active for some weeks. Anything may retain and carry it—forage, straw, hay, clothes, etc. A striking case is related in Mr. George Fleming's valuable work, "Sanitary Science and Police," in which it is stated that troughs which had been lying for four months exposed in the fields, but which had before been used by diseased animals, gave Foot-and-mouth Disease. Another

instance is given in the same work. A farmer owned two farms in an out-of-the-way place, and some distance from each other. On one farm Foot-and-mouth Disease had prevailed severely; the other farm was free from it. The disease disappeared from the infected farm, and nothing more was seen of it for five months, when one of the hay-racks was brought to the healthy one, and very soon the cattle which fed out of it sickened. There was no traffic in the locality, nor yet disease, until the tainted rack was carried down.

The infection of Foot-and-mouth Disease is probably carried in the air for a short distance. Some practitioners deny this; but it is good policy and very desirable to act as if we were sure of it. It is, doubtless, conveyed in straw, hay, men's clothes, railway trucks, etc., and is also communicated by using contaminated troughs or other feeding and drinking vessels. It has often been unconsciously carried by men who have been in contact with diseased animals.

Foot-and-mouth Disease was introduced into Australia in 1872 by a cargo of diseased cattle from England, but was, fortunately, detected in time, and at once stamped out.

One attack of Foot-and-mouth Disease does not confer immunity, for the same animal may have it several times. It is, however, believed by the majority of observers that animals are only attacked once in a season, but some cattle will take it at intervals of only a few months.

Inoculation is practised in some places for Foot-and-mouth Disease—not protective inoculation, but inoculation in order to give the disease to all the animals on a farm or in a herd at once, and so have quickly done with it. Impressed with something like this idea, some stockowners in this country say that it would, in the present outbreak, be better to allow the disease to spread, and so let all the cattle get rapidly over it. I need hardly tell you that the objections to such a course are many and grave, and such as could not be entertained by any responsible authority.

Pleuro-pneumonia Contagiosa.—The contagious Pleuro-pneumonia of cattle is, as you know, a specific constitutional disease, chiefly manifesting itself in the lungs and pleura, and a very

dreadful scourge it is. When we look at it by the light of the germ theory, we at once conclude that it depends on the presence in the sick animal's body of a specific living organism, or microbe, as, indeed, its whole course plainly indicates. We are consequently not surprised to learn that the bacterium has been discovered at the University of Louvain, in Belgium, by MM. Bemylants and Verriest. The bacterium exists in the form of micrococcus.

As you all know, protective inoculation against this disease has long been practised on the Continent and other parts of the world, but in the United Kingdom it has made comparatively little way, or only too often it has been tried to be condemned. It must be confessed that the failures have been mostly due to erroneous methods of procedure. Of late years, however, Mr. R. Rutherford, a talented Edinburgh veterinary surgeon, has extensively and most successfully practised the operation, and has shown how to perform it. He has fully explained all matters of detail, and how to avoid the mistakes and accidents which caused former failures. "He has," says Professor Williams in his last edition of "*The Principles of Veterinary Medicine*," "proved that inoculation will at once and most effectively arrest the spread of Pleuro-pneumonia amongst horned cattle." I was in Edinburgh in 1880, and from conversations with the keen-witted and practical dairymen I ascertained that they considered the operation a genuine success. You can see the *modus operandi* described at length by Mr. Rutherford in the VETERINARY JOURNAL for July, 1882.

(To be continued.)

Editorial.

THE EDUCATION OF THE VETERINARY STUDENT.

THE question of the hour in this country and on the Continent of Europe, so far as the veterinary profession is concerned, is the education of the veterinary student; and it is seriously engaging the attention of those Governments who care for the promotion of veterinary medicine and surgery, and expect to be compensated in proportion as they encourage students, practitioners and teachers. In this country, where the veterinary schools are proprietary or semi-proprietary, we have no paternal government manifesting its solicitude in this direction, or anxious to provide the public with well-educated, useful practitioners; and though the more thoughtful amongst us, who know from experience what the requirements of the times really are, may agitate and strive to meet them by attempting to effect improvement, yet the difficulties to be encountered are seemingly insurmountable, and success all but impossible. Schools and teachers must live, and if possible thrive. Consequently, the benches must be kept occupied, quickly filled, and as quickly emptied; and quantity, not so much as quality, may be the main object. To apprehension that any attempt at radical improvement might diminish the number of entrants to the schools, may be ascribed the opposition which some teachers have offered, for very many years, to all efforts to raise the standard of education—general and professional—by the profession, through the Royal College of Veterinary Surgeons; and this opposition has, until recently, been so far successful that the profession was considered by the public as the most illiterate of any having claims to recognition as an educated body. In this respect there can be no doubt that the schools have made a mistake, and the error has had most serious consequences. A higher and progressive standard of education would not have diminished, but rather increased, the number of admissions to the schools, and its effect in raising the position of veterinary medicine would have been immense. The schools, it is to be feared, have sometimes acted on the notion that anybody was good enough to be made into a veterinary surgeon, so long as he could pay the fees; and to admit everybody, these were fixed at a ludicrously low sum. The competition between the schools—the struggle for existence—has also tended to perpetuate this unfortunate state of affairs.

The Royal College, as has been stated, has ventured at times to intervene, but the opposition to its half-hearted essays has been only too powerful. The wisdom of its intentions cannot be denied, nor yet its disinterestedness; for if, by imposing more severe tests, the number of students was lessened, it must have suffered equally with the schools, as, like the schools, it is compelled to exist on the students' fees. But it was ready to encounter this risk, feeling that its reputation was gravely compromised by the very inferior class of graduates it may have been compelled to license, through the paralysed condition in which it was kept by external influence.

Looking back at what has been the state of things for so many years, the Royal College can scarcely, however, be exempted from blame. It has not done its duty to the profession, nor yet to the public; it has allowed itself to be gulled into the delusion that its powers were of the feeblest and most limited character, and therefore it is that a more emasculated institution probably never existed; the schools fixed the value of its diploma, and defied it to decide as to what that value should be, though they were in no way responsible for the qualifications or competency of those it licensed. We do not say this disparagingly of the schools, as we believe they feared their existence would be endangered if the Royal College took in hand the urgently-needed improvements in education.

At length the matter of general education has been undertaken by the College, and though it should have grappled with it nearly forty years ago (it might have done so as well then as now), it is never too late to mend; so it is most fervently hoped that before long the veterinary student will have to give satisfactory evidence that he possesses an amount of general education equal to that of a medical student.

In the matter of practical instruction in his professional duties, it is admitted by those who ought to be in the best position to know, that the graduate, unless he has had extra-scholastic opportunities, is wofully deficient; and the schools confess that they have not the facilities for imparting this most essential element in education. All kinds of absurd propositions, apologies, and suggestions have been made in this respect; but none of them are worth listening to. It has been contended that the examinations should be more severely practical, but everyone who knows anything of the difficulties under which these examinations have to be conducted, and what they should really be, is aware that the facilities for carrying them out do not exist, and from the very nature of things cannot exist at any of the examination centres. Veterinary examiners have not the same resources as medical examiners. Therefore it is that pupilage with a veterinary surgeon, for a few months before graduation, has been proposed by the Royal College, and endorsed by the profession, as the only likely means by which the student, who probably may know nothing whatever of the manipulation or habits of animals, may acquire some idea of the practical details of his future calling. This has, as usual, been opposed by those whose views or interests are not in accord with the great majority; but the arguments they employ are too trivial, unsubstantial, and reckless to be worth discussing here. Suffice it to say, that while they assert that practitioners are not competent to afford practical instruction, they are themselves recruited from the ranks of the practitioners; and also that these asserted incompetent practitioners examine students for the diploma of the Royal College, without their incompetency being challenged.

A sufficient amount of practical knowledge the veterinary student should and must possess before he is imposed upon the public as fit to practice his profession; this the schools admittedly cannot give, and the examiners cannot sufficiently satisfy themselves he has. The Royal College has recognised this fact, and has sought power, in a supplemental

charter it has applied for, to meet the difficulty in the only way possible—pupilage for a limited period before graduation, with a veterinary surgeon. If this power is not granted by charter, then it can be exercised without it. The period of study can be extended to six or twelve months, being remitted in the case of those who can give evidence that they have been pupils; and this interval may be devoted to obtaining that practical skill which no one dare deny is necessary, but which the schools justly admit they have not the opportunity for giving. It was not necessary to have asked for this power in a supplemental charter, as it was already possessed by the Royal College; therefore it may be exercised whenever the profession wills that it should be. The need for this knowledge is urgently pressing, and no personal, sentimental, or interested motives should be allowed to stand in the way of its obtainment. He is no friend to public and professional progress who opposes the improvement of veterinary education.

THE FLEMING TESTIMONIAL.

AT the conclusion of the annual meeting on May 7th, Mr. T. Greaves, on behalf of the profession, presented this testimonial, which had been subscribed for by members in nearly every part of the world, to the President of the Royal College of Veterinary Surgeons, Mr. George Fleming, in the following address :—

Dear and respected Sir,—I rise, sir, to perform a most pleasing duty. I assure you it is an especial gratification to me that it should have fallen to my lot to be the medium of expressing to you the heartfelt and cordial sentiments of the members of a numerous and noble profession. I hold, sir, that no loftier or more dignified position can be occupied by man than to be intrusted to perform the delicate and important duty of adequately expressing the true sense which animates its members, for the distinguished services you have rendered the veterinary profession.

We recognise in you, sir, one who has consecrated all his life, all his energies, and all his means, for the advancement of our profession; you have the power of intense application, and have from childhood been filling the cells of your brain with useful knowledge; your earnest, sagacious, and unwearied efforts to raise our profession, coupled with your zeal and enthusiasm, prompted you to do something worthy of your faculties. Methinks I hear you say :—

“ The moments fly on lightning’s wings,
And life’s uncertain, too,
We’ve none to waste on foolish things,
There’s work enough to do.”

And now, through long and indomitable energy having achieved such great results, your mind, warm with exalted ideas, must experience a rapture in retrospect, an undefinable tender pleasure in looking back on duties performed, with the assurance that now our profession has a great future before it.

This is the second time I have had the great honour of presenting you with a testimonial from the veterinary profession, and I am proud to know that you possess the continued confidence of your professional brethren—the feeling of obligation to you, and the sincere esteem in which you are held, is deeper and deeper.

The idea of this testimonial emanated from our old friend, Mr. John Bean Martin, of Rochester. I found that his sentiments were entirely in unison with my own upon this point. On making extensive inquiries, I also found the same anxious desire existed universally in the breast of every one I conversed with, and that it was only waiting for an opportunity to develop itself.

And now, sir, I am proud to present you with a token of gratitude from members not only of Great Britain and Ireland, but also from America, the United States and Canada, India, Africa, and Australia, for the distinguished services and the long-continued efforts you have made to advance and elevate our common profession.

One of these portraits we present to you, and ask your acceptance; the other (the full length one), we present to the Royal College of Veterinary Surgeons. It will be a companion picture to the one presented to Major General Sir Frederick Fitzwygram twelve months ago; they are twin giants in our profession. Our children and children's children will look upon them with a feeling of pride and veneration, and will bless God they had lived, and in their day and generation had done such good work for us. Yes! generations will gaze upon that grand spectacle—long after you are both removed from amongst us—they will know that you have done noble services, and left an imperishable name, that you stimulated the minds of men with sublimer and more exalted thoughts of their profession, and of duty, enriching the world with your keen observation and giving to life nobler aspirations.

We also beg your acceptance of a further present—of two pieces of silver plate, one a centrepiece, and the other a tray of the value of 200 guineas; and it only now remains for me to say, that we trust and pray that you, your wife and family, will have vouchsafed to you all health, long life, and every comfort to enable you to enjoy these presents, which are freely given, out of the bounty of 310 members of a profession, in which we look upon you as one of its brightest ornaments.

Upon each portrait and upon each piece of silver is affixed the following inscription:—

“The Royal College of Veterinary Surgeons.

*“Presented by its Members to GEORGE FLEMING, Esq., F.R.C.V.S., LL.D.,
President 1880-1, 1881-2, 1882-3,*

as a token of sincere esteem and gratitude, for his many distinguished services in veterinary literature, and in the obtaining of the Veterinary Surgeons Act of Parliament, 1881, by which the social status of the profession has been greatly elevated, May 7th, 1883.

*“THOMAS GREAVES, Knott Mill, Manchester, Chairman,
“HY. JOSEPH CARTWRIGHT, Wolverhampton, Treasurer,
“JOHN BEAN MARTIN, Rochester, Hon. Secretary.”*

Mr. Greaves further stated, after paying all the expenses that had been incurred, the Committee found a sum of £32 remained in hand. He proposed, and the Committee at once agreed, that £30 should be invested in a diamond ring, and presented in the name of the veterinary profession to Mrs. Fleming. He was happy to say that that morning Mrs. Fleming selected a ring out of a large number, and now with very great pleasure I present it to Mrs. Fleming by her husband. (Applause.)

The PRESIDENT, who was most cordially received, said it was scarcely possible for him to state in words the deep sense of pride with which he accepted this evidence of their bounty and gratitude. It had been said that out of the fulness of the heart the mouth speaketh; but this, in his case, was not a correct assertion, as he found that in proportion as the heart was full, so

the mouth failed in expressing what the speaker felt. Their history was, to some extent, his own history ; he was one of themselves ; he had passed through every grade, commencing at the bottom and rising as well as he possibly could to the top, and therefore he could speak to them as one who had toiled like themselves. They were cognisant of his history, now almost a public one. From his early days he had been deeply impressed with the necessity of promoting veterinary science in these kingdoms and in English-speaking countries. When he was first ushered into public life as a qualified member of the profession, he felt very strongly that their position was very far from what it should be ; and commencing life under certain disadvantages, he had very much to do in order to start on equal terms with others who were working in the same direction and had already done good work. Nevertheless, he looked back to those struggling days with feelings of the greatest pride and satisfaction, because he found that the more he attempted to teach himself, the better he was taught, and the better able to apply that which he acquired. The position of the profession at that time was known to them all. For very many years they were not looked upon as members of a profession which could hold its own in society ; and at the time of the outbreak of the Cattle Plague, in 1865, they received an amount of abuse and defamation which perhaps no other profession ever had to submit to. In the columns of the leading newspapers they were denounced as “ignorant, illiterate, and brutal” ; and perhaps it was as well that those words were written, because without such stimulus he did not think he should have worked so hard. From that time he made it the object of his life to prove, so far as an individual could, that they were neither illiterate, unscientific, nor brutal, and the profession had now, he felt, recognised that he had done his duty in that direction. They had declared it, and he felt that no higher reward could be bestowed upon any one than that which they had accorded him. No men were better judges of a man’s qualities than those in the same position as himself, and to receive the substantial, noble recognition which they had made was to him far higher evidence of merit, and a source of greater pride, than any other distinction which could be conferred upon him. The severest criticism which a man could expect was that which was generally made him by his colleagues, and if he had undergone this so satisfactorily as to merit such abundant recognition now, it would be a lifelong pleasure to be reminded of it in the tokens which they had asked him to receive.

He had toiled for long years, by night and by day, to promote the instruction, the elevation, and the welfare of the veterinary profession, and at sacrifices and risks which they could never be aware of ; his most strenuous efforts had been exercised towards maintaining the unity of the profession, so often menaced, and now secured by the Veterinary Surgeons Act ; while nothing was left undone to demonstrate to the public the large measure of utility and humanity which appertained to their calling. He gloried in the knowledge that he possessed the friendship, confidence, and esteem of every member of the profession whose friendship, confidence, and esteem were worth possessing, and that alone was worth living for and striving to obtain. Twice in four years the profession had given most unprecedented evidence of its appreciation of his disinterested labours, and no greater incentive could be held out to future workers like himself than such testimony. To the gentlemen of the Committee and to all those who had aided them in bringing such a flattering record of their opinions to this happy conclusion, he could but say thanks, thanks, and repeated thanks. The memory of their goodness would never be effaced from his mind, and though Mr. Greaves had alluded to him in terms far too eulogistic, yet this was only an evidence of the kindly spirit with which they had looked upon all he had, through the help of Providence, been able to achieve. If he had been able to accomplish much, this was due

not only to robust health and a firm determination to overcome every obstacle, but to the assistance, loyalty, and zeal of those who aided and encouraged him. He did not know that he could add more ; it was difficult indeed to speak of oneself, but he could assure them that so long as he lived he should do his utmost to promote the welfare of the veterinary profession, not only in these kingdoms, but throughout the world. (Loud applause.)

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Olver, H.	...	2	2	0	Shipley, W.	1	1	0
Paradise, H.	...	1	1	0	Smith, S.	0	10	6
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Pallin, S. L., A.V.D.	...	5	0	0	Stock, R. A.	2	2	0
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Perrins, H.	...	2	2	0	Taylor, Peter	1	1	0
Pearce, J. H.	...	0	10	0	Taylor, R.	1	1	0
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Phillips, C., A.V.D.	...	1	0	0	Trigger, O. C.	1	1	0
Philips, J. J., A.V.D.	...	1	10	0	Thomson, H., A.V.D.	1	1	0
Price, E.	...	1	1	0	Thomson, D.	0	10	6
Preston, James	...	1	1	0	Unsworth, I. B.	0	10	6
Queripel, A. E., A.V.D.	...	2	2	0	Varney, jun.	0	7	6
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Robertson, Professor	...	3	0	0	Wally, Professor	1	1	0
Rostron, Jas. Ashworth, 2nd	Wallis, W. S.	1	1	0
Life Guards	...	5	0	0	Wilson, S. M., A.V.D.	1	1	0
Roberts, R.	...	0	10	6	Wiggins, F.	3	3	0
Rowe, R., A.V.D.	...	1	1	0	Withers, S. H.	2	2	0
Rock and Son, P.A.	...	5	5	0	Wilson, W.	1	1	0
Rutherford, R.	...	2	2	0	Winton, D.	1	1	0
Rutherford, C., A.V.D.	...	2	2	0	Withers, H.	1	1	0
Russell, Capt.	...	3	3	0	Withers, A.	1	1	0
Russell, G.	...	0	10	0	Woodger, Joseph	2	2	0
Santy, A. H.	...	1	1	0	Woodger, E.	3	3	0
Samson, F. G.	...	0	10	6	Woodger, J., jun.	3	3	0
Sartin, S. R., A.V.D.	...	1	0	0	Woods, W.	2	2	0
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,, Secretary's Expenses 28 0 0
,, Treasurer's ,, 5 0 0
Cash in Hand ... 11 16 6

£465 6 6

J. B. MARTIN, *Hon. Secretary.*

THE BACILLUS OF GLANDERS.

BY O. ISRAEL, ASSISTANT AT THE PATHOLOGICAL INSTITUTION, BERLIN.

KOCH'S discovery of the bacillus of Tuberculosis has opened out a new field with regard to this class of diseases, and especially so with respect to Glanders and Syphilis. I devoted my attention last summer to the first-named of these affections.

When I commenced to work at the subject, it struck me, from theoretical observation, that the disease was due to a fungus, which, upon examination of the organs so affected, I found to be the case. I at once set to work to cultivate the fungous elements, and to use various colouring agents for staining them. I soon discovered I was dealing with a peculiar material. Through the kindness of Prof. Dieckerhoff, of the Berlin Veterinary School, I was enabled to obtain large pieces of horses' lungs containing well-marked glander lesions. From these I inoculated the serum from coagulated horse blood, and obtained by cultivation two forms of bacilli; the one was small and innocuous, the other large, and produced Glanders in rabbits when introduced into their systems. The latter bacillus was very similar to that of Tuberculosis, it being about the same length, but slightly thicker, the most distinguishing difference being, however, the relatively large size of its spores. I found this same bacillus on three different occasions when examining fresh material. I inoculated rabbits with the fifth and sixth generation of the bacillus. Two of them showed symptoms of the lymphatics being affected, as well as the characteristic ulcers on the Schneiderian membrane, and typical lung nodules. The rabbits were inoculated on the shoulder: one animal died without showing any signs of Glanders, whilst another remained alive. To control the correctness of my observations, I sent the diseased animals to my friend Prof. Dieckerhoff, who confirmed my opinion, and pronounced the lesions identical with those of Glanders. After hardening these tissues, I examined them, and discovered the same bacillus as that used for cultivation. There appeared to be no difficulty in cultivating the Glanders bacillus; therefore I determined to wait until I could obtain some fresh equine Glanders, to get some fresh material (cultivations) in order to repeat these experiments, and so to ratify my results, before inoculating a horse. After a time I had the opportunity of examining a living glandered horse, and I found the bacilli were not present in the pus from the nasal ulcers at all, and only sparingly so in the subcutaneous and cutaneous "Farcy buds." Every precaution was taken in obtaining the material from these: the hair was first shaved, then the grease removed with ether, and finally the part disinfected with a solution of corrosive sublimate. Five trials to obtain a cultivation of the bacillus from this source remained ineffectual; although there was a peculiarity in one special case which I will relate presently. These cases of Farcy were not numerous, and it was some time before I could determine whether the sterility was due to the use of hot platinum needles or not. However, I think it is clear that the bacilli in this situation are no longer in a state to multiply. Microscopical examination of this puriform matter showed numerous spores, which I considered to be spores of the Glanders bacillus, although the rods themselves could not be found. From this it would appear that the life of the bacillus soon becomes destroyed after the death of the tissues themselves. I have not yet been able to obtain any fresh material for cultivation, and therefore have not had the chance to inoculate a horse.

During the intervals which elapsed between the various cultivation and

inoculation experiments, I was engaged in examining the hardened tissues with various colouring agents. The ordinary solutions of the aniline colours stained them with various degrees of intensity ; therefore it was out of the question to expect to discover a similar specific reaction to that found with the tubercle bacilli. The difficulty of detecting them in the tissue renders the use of some colouring agent imperative ; therefore I tried the methyl-violet, but this stains the nuclei of the tissue as well, and there is the difficulty of distinguishing these from the bacilli themselves, which are rarely found in clusters or large colonies. Although the bacilli are easily detected in the caseous tissue, still they appear to be better coloured in the inflammatory zone. I have never yet been able to detect them in the hepatized portion of lung surrounding the nodules ; but as my investigations have been so limited, and the anatomy of Glanders is nearly as extensive as Tuberculosis, this point cannot at present be settled. With regard to the distribution of the contagium in the body, I am not able to speak, except that I accidentally discovered, on section of the lung, one of the small arteries filled with an embolus, and this was found to be studded with bacilli. From its compactness, it was evidently not of a parasitical nature, such as are those in Diphtheria, Endocarditis Ulcerosa, and septic processes, where the whole plug appears to be formed of micrococci ; but rods were distributed throughout the decolourized mass, which indicated that the embolus was aged. The submucous veins of the nostril may be looked upon as the origin of these emboli, as those around the ulcers are distended with thrombi. The most important channel for the contagium to gain access to the lungs appears to be inspiration : as the air passes through the nasal cavities it carries portions of contagious matter with it.

I mentioned above that there was a speciality about the inoculation material obtained from the skin abscesses, and I will here briefly point it out. From the little abscesses in the upper lip of a horse affected with chronic Glanders, I found small micrococci, which multiplied in cats, and in horses produced a small abscess at the point of inoculation, these containing a thin liquid pus. I mention this because it is quite possible that other organisms may grow and multiply in the same media, and along with those of Glanders.

THE TREATMENT OF LAMINITIS IN THE HORSE.

BY PROF. DR. CSOKOR.

It is well known from experience that when a horse suffering from Laminitis is treated early, *i.e.*, before the malady has existed twenty-four hours, the prognosis may in most cases be said to be favourable. In those cases, however, where the disease has existed longer, or is of a very severe form, or where ordinary treatment has been carried out from twenty-four to forty-eight hours without any benefit, I scarify the coronets on both sides of both feet, say three or four insertions of the lancet ; but the number of incisions depends very much upon the amount of blood obtained. If the coronary artery is opened, and it bleeds too freely, apply a small bandage, and a stitch may even be required through the lips of the wound. Sometimes bleeding occurs the following day when the bandage is removed. However, the results from this method of treatment have been very good, although I do not neglect other treatment, for in some cases (according to circumstances) I apply cold applications (ice), etc.

Two of my colleagues, to whom I had reported my success from this operation, have also tried it, and have met with similar good results.

ACTINOMYKOSIS OF THE COW'S LUNG.

BY HINK, V.S., OFFENBURG.

AT a *post-mortem* examination of a ten-year-old cow, I found the right lung partially adherent to the pleura; the middle lobe of the lung was studded with yellowish, hard nodules, about the size of peas, which on first sight could not be distinguished from ordinary tubercle. The other parts of the lungs were perfectly normal.

Upon closer examination, these nodules were found to be easily shaled out, and could even macroscopically be distinguished from tubercle. When cut into, several of them presented openings in their centre, out of which small worm or maggot-like white bodies could be pressed, each having an ochre-yellow cretaceous end. The rest of the nodule was of a grey colour, but thickened on the outside.

Microscopically, the ochre-yellow points turned out to be calcified actinomyces, which, on pressure of the cover-slip, broke up into exquisite radiating wedge-shaped bodies, covered on their outside by a mass of so-called granulation cells. In other parts of the field there was an innumerable quantity of refracting bodies, which were nothing more than isolated portions of the hyphen. There were also a few pear-shaped bodies and round and oval cells, which were attached to portions of the hyphen, and in one part of the field a finger-like part of the hyphen was detected. These were undoubtedly connected with the formation of spores, although they were in such small numbers.

On adding HCL to the preparation, the calcium was dissolved out, but the fungus still remained.

From a section I could study their structure much closer. In the centre of the nodule there was a more or less calcified fungus, embedded in a layer of granulation cells; around this was a loose connective tissue infiltrated with granulation cells; farther outwards these cells became less in number, but the connective tissue became more compact, forming a fibrous capsule.

This process was limited to a small circumscribed part of the lung. The nodules were mostly the size of peas, and contained in their centre several calcified fungi, of a beautiful radiating structure, without presenting any perceptible nodular swellings on the periphery.

The case related by Pflug was acute, whilst that related above is chronic, and limited to a small isolated part of the lung tissue. Pflug found the fungus in the commencement of its life, whilst in my case its life had ended: this accounts for the absence of the calcification in his case, and its presence in mine. The extent of the process depends upon the mode of infection. In any case it was primary contagion, and not metastasis; and I come to this conclusion from the absence of any disease of the tongue (hardening) or glands (swelling). The 'actinomyces' spores must have been suspended in the inspired air.

THE BRITISH VETERINARY ASSOCIATION.

THE first meeting of this Association was held in London on May 8th, and was very successful. The report is not yet ready for publication, but we hope to publish it in our next issue.

VETERINARY SCHOOL FOR BENGAL.

THE following resolution of the Government of Bengal in the Medical Department appears in the *Calcutta Gazette* :—

“ Reports of severe outbreaks of cattle-disease have for many years past reached the Government from various parts of these provinces, and the question of preventing or mitigating these visitations has from time to time received much attention. The matter was brought into special prominence in 1868 and 1869, and a Commission was appointed by the Supreme Government to inquire generally into Indian cattle-plagues and to report on the measures which might be adopted to check their ravages. The Commissioners in their report submitted in 1871, suggested various precautions to prevent the spread of disease on the appearance of epidemics, but laid stress particularly on the need of a skilled agency for the treatment of cattle, and recommended the establishment of a school for the special object of imparting instruction in veterinary science, and training a class of natives for service among the people, whether as Government officers or as private practitioners.

“ 2. The want of a staff of natives possessed of a fair knowledge of veterinary treatment has been repeatedly felt in Bengal in connection with outbreaks of cattle-disease. Efforts have been made in past years to convey instruction to the people in these matters; and the officials have on the occurrence of epidemics, generally enjoined on owners of cattle and endeavoured to enforce, as far as practicable, the observance of such precautions as were likely to check the spread of contagion. These measures, however, though productive of some good, have been attended with no lasting success. Permanent improvement in the treatment of cattle can apparently be attained only through the agency of a body of native veterinarians, constantly working among the people, and ready in times of epidemics to undertake the introduction and supervision of both preventive and curative measures in the localities affected.

“ 3. The Lieutenant-Governor is therefore of opinion that the question of opening a veterinary school in Calcutta should now be definitely taken up and settled by the Government, and he has decided to refer it, in the first instance for inquiry and report to a committee of gentlemen specially qualified to deal with the subject. The following gentlemen are appointed members of the Committee :—President—Surgeon-Major K. McLeod, M.D. Members—Inspecting Veterinary Surgeon J. H. B. Hallen, Indian Veterinary Department, General Superintendent of Horse Breeding Operations in India; T. Greenhill, M.R.C.V.S.

“ 4. The students to be provided for should be of the same class as those now trained in the vernacular medical schools, but Mr. Rivers Thompson would himself prefer the establishment of a separate institution instead of a branch attached to the Sealdah Medical School. The Committee should report on the cost of such an institution, the staff to be employed, and generally on the instruction to be given. The question of the best site for the school might also be considered by the Committee. It seems to the Lieutenant-Governor that, for practical observation and treatment, Ballygunge or some suburban site would be preferable to Calcutta itself.

“ 5. The Committee will be good enough to assemble as soon as possible, and to submit their report for the information of the Lieutenant-Governor before the end of the present cold season.”

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

SPECIAL MEETING OF THE COUNCIL, HELD AT THE FREEMASONS' TAVERN, MAY 7th, 1883.

The President, G. FLEMING, Esq., in the Chair.

Present:—Messrs. Fleming, Pritchard, Greaves, Wragg, Dray, Taylor, Cartwright, Perrins, Gowing, Santy, B. Cartledge, and the Secretary.

The SECRETARY read the notice convening the meeting.

Letters were announced from Professor Simonds and Mr. Broughton, regretting their inability to be present.

The SECRETARY announced that the Central Veterinary Medical Society had presented the Council with fifty guineas towards the College Fund.

On the motion of MR. DRAY, seconded by MR. CARTWRIGHT, a vote of thanks was passed to the Central Veterinary Medical Society for their gift.

MR. GREAVES asked whether any action could be taken in reference to the £1000 that was proffered to them under the will of the late Mr. Field.

The PRESIDENT said it had been decided to discuss that subject at the next quarterly meeting of the Council.

On the motion of Mr. TAYLOR, seconded by Mr. DRAY, the minutes were taken as read.

MR. DRAY proposed the re-election of Mr. A. W. Hill as Registrar. The past ought to be a guide to the future, and Mr. Hill's antecedents were a passport in his favour. His assiduity and diligence were deserving of every commendation. His actions manifested his zeal in the interests of the profession.

MR. WRAGG seconded the motion, which was unanimously agreed to.

The SECRETARY thanked the Council for the honour they conferred upon him. He had had an immense amount of work, but felt much gratified to know that the Council had taken cognizance of his labours. With a constituency now numbering 3,400, it was sometimes difficult to please every one, notwithstanding the great desire to do so.

MR. DRAY said that for some time the work of the Registrar had been Herculean. He had had opportunities of judging how very hard Mr. Hill had worked in the performance of his duties as Registrar. The College had not only been besieged by letters, but also by people at all hours of the day, and even at some hours of the night, and Mr. Hill had always received them in a gentlemanly and courteous manner. The Council ought to recognise such valuable services, and he was sure they would, and he therefore proposed "That a bonus of £50 be presented to him."

MR. SANTY seconded in equal terms the proposal.

MR. GREAVES asked the President whether it was in the power of the meeting to make such a grant.

The PRESIDENT, while endorsing every word that Mr. Dray had said, thought that the proposal should be reserved until the next quarterly meeting, when the proposal would be considered by the whole Council.

MR. DRAY expressed a hope that it would be unanimously supported when he brought it forward again at the quarterly meeting. He hoped it would appear on the Agenda on that occasion.

The Council thereupon ordered that it be entered on the Agenda for the next quarterly meeting.

The SECRETARY read a letter from the Privy Council office, dated May 4th, 1883, stating that a petition had been received from the Highland and Agricultural Society of Scotland objecting to the part of the Supplemental Charter which provided for a term of pupilage for candidates, and suggesting that the final examination should be of a practical nature. If the student failed to pass, he might be required to study at a veterinary college or with a veterinary surgeon. The Lord President wished to know if the Council had any observations to offer with regard to these suggestions.

The PRESIDENT said he thought the reply to be sent should be couched pretty much in the terms of the discussion at the Council meeting, to the effect that the Royal College of Veterinary Surgeons had for years instituted an examination such as that suggested, but it was decided by a majority of the Council that there were not facilities for affording the requisite instruction at the schools, and that even the examiners at the final examination had not facilities for testing the fitness of students in that respect. If the Privy Council were made aware of that fact it would probably be sufficient.

Prof. PRITCHARD said it occurred to him that it was rather impudent on the part of the Highland Society, after the arrangement that had taken place between them and the Royal College of Veterinary Surgeons.

The PRESIDENT said he most acutely felt the position that had been taken up by the Highland Society. He had seen three petitions that had been lodged against the Supplemental Charter. One was from the Edinburgh Town Council, another from the Highland Society, and the third from the Town Council of Glasgow. The latter objected to the raising of the fees and the pupilage ; in the other petitions objections were also made to these, and one of the reasons set out was that by serving a pupilage the morals of the pupils would be injured. A more slanderous assertion could not be made against a body of professional gentlemen. Still, he did not blame the Edinburgh Town Council or the Highland Society, but the advisers of those bodies, and he was afraid that the instigation to such assertions came from members of their own profession. The morals of the members of the veterinary profession would compare favourably with those of any other profession, and he could safely say that at the veterinary schools in Edinburgh the morals of the students were much more exposed to damage than they would be if the young men were simply pupils of members of the profession. If such assertions as he had alluded to were put into the mouths of public bodies by members of their own profession, how could they ever hope to maintain their position? The petitions were shown to him privately, and he confessed that when the Lord President of the Privy Council asked him what this meant he could not answer him. If the veterinary profession did not know what its own requirements were, he was perfectly certain that the Highland Society did not. He therefore thought that in their reply to the letter they should endeavour to show that the Highland Society was going beyond its province, that the subject had been fully discussed by the profession, and that the terms of their petition for a Supplemental Charter were arrived at after due consideration. The Highland Society evidently did not know that for years the Council had instituted the examination now suggested, neither did they appear to know the requirements of the profession. The question was a very serious one, and the Highland Society had no right to interfere in the matter. It was solely a question between the Privy Council and the Royal College of Veterinary Surgeons.

Mr. GREAVES said he was delighted with what the President had said. The Highland Society, as a corporation, could not be aware of the true position of the profession. There was not a vestige of truth in the charge with respect to the demoralising of the youths, which was ten times as great at the colleges, especially in Edinburgh, as at any private establishment.

Prof. Spooner and other men of great eminence had said, over and over again, that they could not give a practical education to the students in the short time that they remained at the colleges, and they required other teaching in order to make them practically efficient.

Mr. DRAY proposed that a letter be sent to the Lord President of the Privy Council, embodying the views stated by the President.

Mr. WRAGG seconded the motion, which was agreed to.

Professor PRITCHARD asked if there was any way of ascertaining who the particular advisers of the Highland Society and the Edinburgh Town Council were.

The PRESIDENT said it was easy to guess from the language that had sometimes been used at the Council table.

A vote of thanks to the President terminated the proceedings.

THE FORTIETH ANNUAL GENERAL MEETING WAS HELD AT THE
FREEMASONS' TAVERN, MAY 7TH, 1883.

The President, G. FLEMING, Esq., in the Chair.

Present:—Messrs. G. Fleming, W. A. Taylor, A. H. Santy, Jas. Reilly, H. R. Perrins, H. J. Cartwright, Geo. A. Banham, W. Williams, James Freeman, B. Cartledge, Thomas Greaves, G. Western, Thomas Walley, John Pemberthy John George Cross, H. W. Thomas, J. S. Price, C. Moir, J. Mackinder, James Lambert, T. D. Lambert, E. T. Cheesman, Thos. Walton Mayer, W. J. Mulvey, David Dudgeon, Genl. Sir F. W. Fitwzygram, M. J. Harpley, H. D. Gibbings, T. Briggs, W. Robertson, F. H. Y. Pedler, D. Gibbons, F. W. Wragg, William Pritchard, William Wilson, J. T. King, Fredk. G. Samson, James Rowe, E. M. Davy, Thos. Burrell, George J. Gould, Henry B. Hancock, Percy B. Spooner, J. McCall, W. G. W. Boswell, T. W. Gowing, junr., C. Whitney Gillard, C. C. Sanderson, A. J. Owles, John Ward, Peter Taylor, F. Morton Wallis, Alex. Lawson, M. Hack, W. Burt, A. R. Charles, J. Gibbs, James Hall, George Gray, W. B. Walters, Ben. H. Russell, J. G. Parr, W. H. Bloye, J. H. Ferguson, W. Helmore, Osborne Hills, Alfred C. Wild, Layton J. Blenkinsop, Edwd. S. Shave, Thomas Moore, Thomas Pottinger, Charles Sheather, J. E. Elphick, A.V.D., J. Roalfe Cox, J. M. Gillingham, Hartley J. Batt, Edward Woodger, T. G. Batt, Sydney H. Slocock, John Cameron, James Broad, W. R. Hagger, William Hunting, Henry L. Simpson, and A. W. Hill, Secretary.

The SECRETARY read the notice convening the meeting.

Election of Council.

The SECRETARY read the result of the ballot for members of the Council, from which it appeared that Messrs. W. Robertson obtained 679 votes; L. W. Axe, 489; F. W. Wragg, 476; W. Whittle, 442; W. Duguid, 406; J. R. Cox, 386; Alex. Robinson, 377; C. Stephenson, 303; W. Broughton, 273; J. Borthwick, 250; J. Woodger, 216; J. D. Barford, 195; H. Olver, 165; and W. B. Walters, 108.

The first six on the list were elected members of the Council.

Messrs. G. R. Dudgeon, Charles Sheather, Percy B. Spooner, Henry J. Hancock, Harry C. Talbott, Thomas Pottinger, H. Durant Gibbings, and Ernest Edwin Batt, officiated as Scrutineers.

On the motion of Mr. DRAY, seconded by Mr. P. TAYLOR, a vote of thanks was passed to the Scrutineers.

The minutes of the last annual meeting were taken as read and signed by the Chairman.

The report was then received and taken as read.

Mr. T. W. MAYER moved the adoption of the report. With reference to the new building, he said he did not think they would obtain any assistance from the Treasury. It was useless to ask for money, but they had a right to ask for a site upon which to build; and if the Government were disposed to recognise the veterinary profession, which they had never done yet, the least they could do was to give them a spot to build on. He hoped that the Council would endeavour to proceed in this matter, for with the number of members that they had they ought to be able to raise enough money to build a moderate-sized church. They had received a munificent benefaction from the estate of the late William Field, and he had no doubt that that would exercise a stimulating effect upon the profession, not only to secure that benefaction but to increase it. It was his good fortune for a number of years to enjoy the friendship and hospitality of the Field family, and he could say that no more worthy man ever lived, or one more desirous of promoting the efficiency of the veterinary profession than William Field. (Applause.)

Mr. MACKINDER called attention to the part of the report referring to the registration of existing practitioners, which stated that the Council had required objections to be made in the form of an affidavit. This he said had been found very objectionable; in most cases the information could be obtained in other ways, and they ought not to insist upon a sworn affidavit.

Mr. W. J. MULVEY concurred in the objection, and mentioned the case of one man who applied for registration, who had been sentenced to five years' penal servitude for robbing the Postmaster General while serving as a postman in a large town. He (Mr. Mulvey) brought the case under the notice of the College, and sent evidence of the fact, but he declined to make an affidavit on the subject. The necessary evidence could have been obtained by the Registration Committee by applying at the Home Office.

Mr. DRAY said the Registration Committee had been most careful not to place any man upon the Register who had been convicted before the magistrates. It may have happened that improper persons had been admitted to the Register, notwithstanding the vigilance that had been exercised; but he could assure the members that the Registration Committee had performed their duties in a most diligent and conscientious manner.

Captain RUSSELL asked what steps could be taken in the case of persons styling themselves veterinary surgeons who were not entitled to do so.

Mr. T. S. PRICE called attention to the voting papers for the Council, and asked why it was necessary that they should be sent in seven days before the meeting was held. He thought two days would have been quite sufficient. With reference to the handsome gift from their respected friend Mr. Field, he wished to impress upon the members that unless they could find another thousand pounds within twelve months, that money would be lost to them. The Council should, therefore, strain every nerve to make it well known to the profession in general that they must produce a thousand pounds before they could claim that gift as their own. With regard to the registration of existing practitioners, he knew that the Council had had a very arduous duty to perform, but it did seem an extraordinary thing that they should send letters out stating that members of the Royal College of Veterinary Surgeons protesting against persons applying for registration must send in their reasons before a certain date, and then, when those written protests were sent in, that a paper should be sent from the Council to say that the protests must be in the form of a statutory declaration. He and two or three other London members called a meeting and got these statu-

tory declarations drawn up as quickly as possible, and he had the satisfaction of taking to the Secretary of the Royal Veterinary College ninety-one statutory declarations against persons in London who wanted to be placed on the Register, and he thought if that meeting had not been called there would have been a far greater number placed upon the Register than there were at the present moment. The result of the action of the Council, however, was that several gentlemen were so disgusted after what they had done that they said they would not take any further trouble in the matter at all. With regard to the new Supplementary Charter, he thought it would be a great advantage to the profession to enforce pupilage. It was a step in the right direction, and he should be glad to see it carried out. It was also fair that students should pay increased fees for the advantages that they enjoyed.

Mr. HUNTING then criticised the report in considerable detail. With reference to the election of examiners, he thought the present board of examiners was a very good one, and he should be sorry to see the Council try to get rid of those members of the medical profession who had rendered such valuable services in past years by assisting at their examinations. The matriculation examination was a step in the right direction, but he thought that a man should be allowed to make up a sufficient number of marks in the obligatory subjects by excessively good work in the voluntary subjects. As to Euclid and algebra, he thought they might be safely left out and replaced by modern languages and, say, physics. It would be better for a man to pass a fairly good examination in electricity, statics, or dynamics, than in ancient or modern history; for certainly a knowledge of electricity at the present day would be of more advantage than the ability to write a learned treatise upon the causes that brought about the second Punic War. He had nothing but praise and thanks to say about the new Act and the men concerned in it. He thanked the Council, the Committee, and the President, and he would go out of his way to thank him more positively were it not that he was reminded that more eloquent tongues than his would do it by-and-bye. With regard to the new Supplementary Charter, he objected altogether to the period of pupilage, and thought that the object sought to be obtained would have the effect of putting every possible obstacle in the way of men entering the profession. Out of the six points named, was there one that was worth the trouble or expense of going to the Government, or worth keeping up this eternal quarrel between the governing body and the schools? Was it worth while adding any more friction by means of this proposed charter, consisting of six points, two of which were injurious and three altogether useless? He concluded by proposing an amendment—"That the report be not adopted unless the whole paragraph in reference to the new Supplementary Charter was omitted."

Mr. WILSON in seconding the adoption of the report as proposed by Mr. Mayer spoke of the increase in the examination fees. Looking at the great expense upon a young man's entering the profession, he thought they should consider well before making a proposition to increase that expense.

Mr. DUDGEON said he was old enough to remember the time when the first attempt at compulsory pupilage was proposed, and that resulted in the formation of the Highland Society's Board. It was only three years ago that that Board was done away with, and it was rather singular that an attempt should be so soon made to enforce a compulsory pupilage clause. He thought that the examiners had sufficient power to see that every student had a thorough practical knowledge of his profession before he obtained his diploma. To say that he must become the pupil of a registered veterinary surgeon was going a great deal too far. He should certainly enter his protest against imposing a compulsory pupilage, and also against increasing the examination fees.

Mr. OWLES supported the pupilage clause. He said the very fact of the recent Bill doing away with a great number of practitioners in the country, rendered it imperatively necessary that the profession should provide well-qualified men to take their places, and it was a question to be considered how those men were to be best educated and rendered capable of performing the duties required of them. His experience of young men from college showed a most lamentable want of elementary practical knowledge ; and therefore, although the Council had not pledged themselves to put in force every clause which the new Charter would authorise, he ventured to say that this was one of the clauses which they believed to be absolutely necessary.

Professor WILLIAMS said the whole matter lay in a nutshell. Every one of the schools objected to the pupilage clause. If, however, the Council would adopt the motion which had been brought forward by Professor WALLEY, namely, to examine the students orally and theoretically first of all, and afterwards to admit them to a practical examination, taking care that no man entered the profession without a thorough practical knowledge, and if he passed that examination to give him his diploma, whether he had been with a veterinary surgeon or not ; but if he failed, then to tell him to go either to a college or to a veterinary surgeon to obtain his practical knowledge in any way he pleased, and then come back. If that proceeding were adopted instead of this Supplementary Charter, then all the feeling of irritation between the schools and the college would be done away with, and they would work together harmoniously for the general advancement of the profession. The schools had supported the Royal College in all its reforms during the last few years, but they did feel now that the Council was going too far, and in fact they would do all that they could to prevent the passage of the pupilage clause. Speaking from his own experience, the men who had served a pupilage with a veterinary surgeon were generally the very worst students that came to a college. They came with habits and ideas formed, and had always to unlearn very much before they could begin to learn, and he generally found they were the very worst students. With these few remarks he wished to enter his protest against the pupilage clause.

Professor WALLEY said the great mistake made by practitioners was that they did not want their pupils to know anything about practical matters. For his own part, and he believed other teachers were in the same position, he would never persuade a man not to learn practical matters : what they wanted simply was to avoid the rock upon which they were about to split of passing a compulsory pupilage clause. His advice to students was to see as much practice as they possibly could, and make what arrangements they could for themselves with practitioners before obtaining their diploma. Some of them had seen practice for several years before coming to college. Though he would rather have them fresh and learn something of theory, and get into habits of study before going to see any practice, he agreed that they should see practice before obtaining their diploma ; but he objected to this compulsory pupilage.

Mr. HELMORE was very much surprised to hear the professors say that the man who had served his apprenticeship was the worst pupil. His own belief was that whatever a man had seen in the way of general practice must be beneficial to him in commencing the practice of his profession ; it would give him that confidence which, of course, employers of veterinary surgeons would very soon discover, for they were very good judges as to whether a veterinary surgeon knew his business. Looking, however, to what they had heard as to heartburning that had been caused between the Council and the colleges, he thought they might fairly ask that the Council for the present would suspend the idea of getting this Supplementary Charter, and not endeavour to enforce it against the will of the professors, who had worked har-

moniously with them for several years. He hoped that the point would be conceded.

General Sir FREDERICK FITZWYGRAM said he was thoroughly opposed to the pupilage clause. It was the business of the schools to educate their pupils properly, and it was the business of the Council to see that the schools did properly educate their pupils, but not to undertake the work of the schools. He had always contended that the schools ought to give a thorough practical instruction, and he saw no difficulty in their so doing. He was sure that if they opened the question of pupilage to the thousand men who had just been registered, they would place their pupils in a very disadvantageous position. He would second the amendment that the Report be adopted less the pupilage clause.

The PRESIDENT said, with reference to the Supplemental Charter, they had only heard one side of the story. For the last hour the opponents of that charter had been fighting a shadow. The Council had not imposed pupilage ; they simply meant to ask for power if necessary to impose pupilage ; and he thought that the profession should have the power to carry out the great object of furnishing practitioners to the public and guaranteeing that they were competent men. All that was done in the Supplemental Charter was to ask for that power. The Council had not decided to impose pupilage. The Council was elected by the profession, and if the profession had no confidence in those whom they elected, they had better abolish the Council altogether. The Council, he thought, must be the best judges of what was necessary for the profession. The schools were largely represented upon it—every matter brought forward was thoroughly discussed ; therefore, if the profession elected the best men they could find to serve upon the Council, and if the Council decided that it was necessary for the welfare of the profession, and the protection of the public, that a period of pupilage should be imposed, then he would say give the Council that power—that was all they asked for in the Supplementary Charter. He thought that on professional matters they ought to be governed by the majority of the profession, and believed it was derogatory to the position of the Council, and most damaging to the interests of the profession, that an insignificant minority should try to over-rule the conclusions of the majority. His opinion was that whatever the majority of the Council arrived at should be carried out. Three petitions had been presented against the charter—two from Edinburgh, and one from Glasgow. With the Glasgow petition no one could find fault, and of the Edinburgh petitions one came from the Highland Society and one from the Town Council. In those petitions he found an objection against pupilage to this effect—that it would in all probability have a pernicious influence on the morals of the students. When such a slanderous aspersion was cast upon members of their profession, it was really time to protest. Those two public bodies in Edinburgh had been impressed with the idea that a practitioner, a member of the R.C.V.S., was not a proper man to entrust a young gentleman to, simply because he would not look after or would injure the morals of his pupil ; and that, he repeated, was a slander on the profession. When he first saw those petitions he must confess his blood boiled with indignation, for a more unfounded aspersion upon a body of professional men could scarcely be made ; and if those corporations had inserted these slanders at the instance of members of their own profession, then he thought serious notice should be taken of it. If the Council were satisfied that the graduates of the Royal College were competent to practise their profession, then the pupilage would be unnecessary ; but he very much doubted whether the necessary practical knowledge could be obtained at the schools. Almost every week he heard that young men going to practise in the country were found deficient in the knowledge of the diseases, and the manipulation of cattle.

and sheep. And when that deficiency was confessed by a school which recently had made great advances, what could they expect from other schools which had not the same advantages? With regard to the increase in the fees, twenty guineas was stated as the maximum, but it was nowhere stated that that maximum would be imposed. In 1844, when the fees were fixed at ten guineas, there was only one examination; now there were three, and the number of examiners and expenses of examinations were very greatly increased. Besides that, the Royal College had to protect the practitioners in the pursuit of their profession, and the graduate must pay for that protection, and that could only be provided by increasing the fees. The Royal College must also have funds to meet its always growing expenses, and there was no way of getting them except from the graduates. The case was exactly the same in the medical profession. With regard to the building, he could assure Mr. Mayer that no chance would be lost of pushing forward the claims of the Royal College, so far as assistance from the Government was concerned. They were entitled to some assistance, and he was in hopes that they would obtain it. In the meantime he thought they had sufficient funds to enable them to look forward to a very early realisation of their wishes, and at any rate to make a start in the matter of a building. The programme of general education examinations was elementary in the last degree, but still, it was a commencement, and it was in the hands of the Council to increase the standard as occasion might require. He thought the profession ought to be congratulated on that step, for it was a step in advance to be able to say that the Royal College had taken the matter of general education into its hands, and that in a very short time they would be able to say that their standard of requirement was as high as that of any other professional body. With regard to examiners, he believed that if they could not find examiners in their own ranks they were not worthy to teach. He thought they had made too much of specialists, for he believed that a practitioner was far better able to test the knowledge that students should possess with regard to the practice of veterinary medicine than any specialists, who had seldom, if ever, studied the pathology or physiology of domesticated animals. With reference to the question of affidavits from members of the Royal College, it should be mentioned that the Council had the greatest difficulty in finding what was right and what was wrong. The majority of the protests that came in were founded upon hearsay evidence. After the existing practitioner had taken an affidavit, they could not merely set hearsay evidence against that affidavit. They required oath for oath if possible, and in every case the members of the Royal College had an advantage, when it was possible to give it them. The remedy was in their own hands, and he hoped that gentlemen would not be backward, if they found any such cases, to report them to the Council.

Professor WALLEY said that he was present when both the petitions to which the President had referred were discussed, and so far as he knew, they contained nothing with reference to the morality or immorality of students. If such a question had been introduced, he could only express his sorrow, for it certainly had not been introduced with his consent.

Professor WILLIAMS said he was present at the meeting of the Highland Society, with Professor McCall and Professor Walley, and the question of morality was never introduced to them in any shape or form. He would ask those who stated that there was no practical teaching at the colleges to make themselves better acquainted with their inner working, and then he was sure they would not make such strong assertions as they had heard that day.

The amendment—"That the report be adopted, with the exception of that portion which refers to the Supplementary Charter"—was then put to

the meeting and lost, twenty-one voting in its favour and twenty-six against.

The resolution for the adoption of the report was then put and carried, thirty voting in its favour and sixteen against.

THE ANNUAL DINNER.

The Annual Dinner of the Royal College took place at Freemasons' Tavern, and was largely attended, among the guests being Col. Milne-Home, M.P. ; Col. Kingscote, C.B., M.P. ; Dr. Cameron, M.P., L.L.D. ; L. Peel, C.B. ; Dr. Farquharson, M.P. ; Dr. Thin ; Dr. Townsend ; Col. Blundell, D.A.A.G., Horse Guards ; Capt. White.

SPECIAL MEETING OF COUNCIL, HELD ON TUESDAY, MAY 22ND, 1883.

G. FLEMING, Esq., in the chair.

Members present :—General Sir F. Fitzwygram ; Professors J. Wortley Axe, G. T. Brown, W. Pritchard, W. Robertson ; Messrs. F. Blakeway, E. C. Dray, G. Fleming, T. Greaves, J. Harpley, H. R. Perrins, R. Reynolds, A. H. Santy, H. L. Simpson, P. Taylor, W. Whittle, F. W. Wragg, H. T. Batt, and the Secretary.

The SECRETARY read the notice convening the meeting.

The minutes of the previous meeting were taken as read and confirmed.

Election of President.

Mr. DRAY said he had once more the pleasure and privilege of proposing a gentleman to fill the responsible duties of president of the Royal College of Veterinary Surgeons. They must all acknowledge that for the last three years that post had been worthily, ably, and justly filled by Dr. Fleming, and that no commendation was too great for his eminent services, for he had by his exertions not only raised the dignity of the Council's proceedings, but had benefited the whole profession. Why had he been so successful ? Because he possessed an ability to fit him for the office almost unique. He also possessed self-confidence, and that inspired confidence in others ; and besides that there was in him a combination of rapidity and accuracy which had made him one of the most remarkable presidents of their time, and had reflected lustre upon the College. His life was wrapped up in duties to the Council and the profession, and his industry was marvellous. Possessing these attributes, he thought they ought not to hesitate a moment, but to re-elect Dr. Fleming as president of the Royal College of Veterinary Surgeons. He had made fresh alliances and friends to promote the extension, improvement, and reform of their institution. He might cite precedents for the action he was taking. In the time of Richard I. a gentleman was elected Lord Mayor of London twenty-five years in succession, and there were many societies and institutions where, when they had such a competent man as Dr. Fleming, they re-elected him. The case of provincial mayors was another illustration, they often holding office for ten or eleven years. He hoped that his motion for the re-election of Dr. Fleming as their president would receive the support of the Council.

Mr. SANTY seconded the motion.

Mr. GREAVES thought they were rather ignoring the provincial veterinary surgeons. He had been a member of the Council for about twenty years, and it had been an understood thing that provincial and metropolitan veterinary surgeons should be elected alternately to the Presidentship. For the last seven or eight years the provincial men had been ignored, and he thought they had a right to complain. Although he could confirm every word

that Mr. Dray had said, for there was no man who respected Dr. Fleming more than he did, yet at the same time he thought they were setting a bad example, and were keeping back many good men who would otherwise come to the front. Although he objected personally to this being repeated so many times, at the same time, if there was no other person prepared he should give Dr. Fleming his vote.

Dr. FLEMING said he felt some hesitation in saying anything at this crisis because the great honour they had already done him by repeated election, showed the high esteem in which he was held. He had accepted that honour with the greatest pleasure, and to the best of his ability had carried out the duties of the chair. He would leave the matter entirely in their hands. He had never moved or asked any support in the nomination for the Presidentship; it was a matter which should be in the hands of the Council, and if they could get the best man in the chair they should certainly have him there. If they thought it was absolutely essential that he should occupy the chair another year in the promotion of the interests of the College, he would gladly accept the office, but if they decided they could dispense with his services he would heartily support any President whom they might elect. If he consulted his own feelings he should certainly decline office; but he had never consulted his feelings when it had been a question of the benefit of the R.C.V.S., and he did not intend to consult them on that occasion.

No other nomination being made, the Council proceeded to the ballot, and in the result Dr. Fleming was declared to be elected.

The PRESIDENT in thanking the Council for the great honour again conferred upon him, said he must first tender his thanks to those loyal members of the Council who had supported him in the arduous duties of the past three years. Those years marked an immense step in advance, and that was chiefly due to the great assistance and encouragement he had received from the Council. In the year about to commence there was much work to be done, and he should trust to the same loyal support which he had hitherto received. He believed they were now in the right track, and he hoped that at the close of the year they would find that they had strengthened their position and improved their basis for future work.

Election of Vice-Presidents.

The following gentlemen were nominated :—Messrs. Broughton, Cartledge, Cartwright, Dun, Hills, McCall, Martin, Robinson, Simonds, Walters, and Woods.

Six vice-presidents had to be elected, and the result of the ballot showed that the selection had fallen upon Messrs. Cartledge, Walters, Woods, Cartwright, Simonds, and Dun.

Election of Treasurer.

The PRESIDENT proposed the re-election of the gentleman who had so well filled the office during the past year. The duties of the treasurer were, he was happy to say, increasing every year, and as they grew they were performed with all the more precision and accuracy. He was sure, in asking the Council to re-elect Mr. Dray, he was only paying him a compliment in saying that he had done his duty so well as to justify it.

Mr. WHITTLE seconded the motion. He was sure that no one could have been more attentive to the duties of his office than Mr. Dray had been.

The ballot was taken, and Mr. Dray was declared to be re-elected.

Mr. DRAY said he was very much obliged to the President for the very kind remarks he had made relative to his re-election. Certainly, his duties had increased, and he should not be sorry if they increased still more, and if the finances of the College followed their example.

Election of Secretary.

Mr. DRAY said, as he had so many opportunities of witnessing the exertions of their secretary, he had very great pleasure in proposing his re-election. His fidelity and his unceasing attention to his duties were remarkable. They could not have a better secretary, and he, therefore, had great pleasure in proposing that Mr. Hill should be re-elected.

Mr. BLAKEWAY seconded the motion.

Mr. Hill was declared unanimously elected.

The SECRETARY having briefly responded, the Council adjourned.

The proceedings terminated with a hearty vote of thanks to the President.

CENTRAL VETERINARY MEDICAL SOCIETY.

AT the meeting of the above Society on April 19th Mr. Sheather's essay on "Contraction of the Foot" was the subject of discussion. Mr. J. Woodger occupied the chair. The other Fellows present were Messrs. H. K. Shaw, J. Rowe, J. Broad, Arthur Broad, C. Sheather, F. G. Samson, W. Hunting, A. Broad, W. Roots, A. B. Daniel, J. Hall Brown, and G. R. Dudgeon.

Mr. A. BROAD asked the essayist whether he would not ascribe the greater number of cases of foot contraction to navicular pain. He was well aware that contraction followed resting of the limb, but had not noted its occurrence from simple inactivity, without pain.

After Mr. WOODGER had remarked upon the absence from the essay of any reference to navicular disease, Mr. Sheather said he had purposely omitted it, thinking that subject, if discussed, should be brought forward separately, and fully entered into : at present he wished to consider primary contraction. The general idea was that contraction was a sequence of navicular disease, and did not itself cause lameness. He thought, on the contrary, that it did so, and that frequently, without the presence of any disease at present recognised, we had cases of contraction of foot with consequent lameness.

Mr. SAMSON, alluding to the possibility of one foot being congenitally smaller than the others, said he had under his notice at the present time a five-year-old horse with one fore foot disproportionately small. The disparity was first noticed when the colt was seven months old. The heels were very upright, and the foot strong ; there was no lameness, yet biniodide of mercury blisters had been applied, under the idea that there was disease, and he was of opinion that lameness would result if the horse were worked upon the London streets and roads. His general idea of the proper treatment for contracted feet was cold water application, standing on flat pavement, and shoeing with short tips.

Mr. HUNTING, from his recollection of the essay, gathered that it was laid down that the causes of this defect were many. It was, he said, desirable to distinguish the physiological causes from the pathological. Before a horse was shod the feet were much wider. Although we should not therefore put down shoeing as the cause direct of contraction, yet indirectly it was a cause, through the artificial conditions in which it compelled the foot to be placed. Another predisposing point alluded to by the essayist was the dryness and heat of the stable. Dryness does favour contraction : we had only, he said, to compare the expanded hoofs of horses reared in moist climates with the upright narrow feet peculiar to horses in hot, dry countries. He looked upon a disproportionate smallness of foot as due to disease. If both fore feet were narrow he should not consider it unsoundness, provided that the hind feet were similar in shape ; but as one means of determining the significance

of a contracted foot he would pare the foot and observe the course and direction of the horn fibres. He did not believe that contraction preceded and caused disease of the navicular joint ; and, as evidence that contraction was due solely to resting the limb, he stated that, after unnerving for navicular lameness, the foot gradually assumed a more natural shape.

Mr. ROWE had noticed that feet sometimes appeared to contract, from neglect of the farrier to lower the wall at the toe, which then gradually became elongated, making the foot long and "blocky," and bringing the heels closer together. He had wondered what effect the gutta-percha pads now so much in use would have upon horses' feet, and gave some results of his experience of different kinds of patents of this sort. He advocated "springing the heels" as a means of obviating contraction.

Mr. SHAW agreed with the essayist that the deformity in question was often caused by horses remaining idle. He deprecated the use of pads, and stated that, in his opinion, the abuse of cutting and rasping the foot on the part of the shoeing-smith greatly predisposed to contraction.

Mr. WOODGER said that, in the main, he also agreed with Mr. Sheather. He did not believe that horses were ever foaled with one foot smaller than the other. He knew two colts which it was supposed had this deformity at birth ; but it was not so : they had been turned out to grass quickly after being weaned, the ground was sloping, and while feeding they acquired a habit of bending the off leg invariably, and in time the off foot of each colt became much contracted, the flexor tendons also suffered from the same defect, and at last incurable lameness supervened. He said it was his opinion that contraction might follow any disease which caused resting of the leg.

Mr. SHEATHER, in allusion to points touched upon, said that he found that the feet affected in the navicular joint were not contracted to begin with, but were, on the contrary, good round feet : they became altered in the manner indicated as a result of the long-continued resting during treatment. He also stated that a horse, if resting in the stable for an inordinate time, gets his feet contracted, or, as it were, in a state of atrophy, and that lameness is induced when he is put to work, the hoofs not being enabled to expand in response to the pressure from above upon the parts within. In comparison with the foot, he referred to atrophy and changes of size affecting a muscle, a structure not closely surrounded by an unyielding material. He considered it possible that a foal might have one foot small at birth, but that in many more cases there was some trivial cause overlooked. If when one foot was smaller than the other it was well-shaped, and the horn fibres did not seem twisted, he would consider it sound. He disapproved of blistering the coronets as a remedy in "contraction," and agreed with the ideal outline of treatment sketched by Mr. Samson, preferring it, he said, to that actually practised in the case he quoted. Though the application of cold water was beneficial, he preferred to alternate hot linseed poultices with the cold douche, the time of application of the latter being much shorter than the time allowed for the poultices.

While dilating on the subject of the use of pads of various kinds, he instanced a case in which, through the pad being allowed to project too far below the level of the shoe, the amount of pressure upon the sole was so great as to weaken the union of sole and wall ; the horse was accidentally killed, and it was found, after one of his feet had been soaked, that without any pressure being used the sole became quite detached from the wall.

Mr. WOODGER then gave some particulars of a case of Ruptured Heart in a horse. He said the patient suffered from congestion of the lungs, and in addition to the pathognomonic symptoms of that malady he observed an intermittent, irregular pulse, at the rate at first of eighty or ninety beats per minute ; improvement gradually took place, and normal respiration was

resumed, but an irregular intermittency of pulse remained, and he advised the owner to part with the horse; this was done, but a day or two after sudden death resulted while the animal was in the stable. The right auricle was found ruptured in two places. There appeared to be no disease of the valves or muscular fibres. He attributed the mortal injury to increase of pressure upon the auricular wall in consequence of pulmonary obstruction.

Mr. HUNTING then read the following essay :—

Bent Legs; their Significance and Cause.

There are two conditions of the limbs which I include under this term, and to which I wish to draw your attention. Horsemen recognise the one as “over at the knee,” the other as “over at the fetlock.” In both the anatomical change is the same, viz., a partial flexion of the joint with no articular disease, and some deviation from their normal relative positions of the bones above and below the joint. This condition varies in degree from the slightest deviation from the correct line to a state in which the most striking deformity is produced. It may exist as a permanent alteration in the form of the limb, and it may be merely temporary, gradually and slowly disappearing. We find “bent legs” in horses of all kinds and ages. Sometimes it is unaccompanied by any disease; usually, however, some part of the limb gives evidence of painful disease, or it may be merely evidence of the recent existence of a painful disease or injury. The hind legs are comparatively seldom affected; and it is worth while remarking that when they are the accompanying disease is above the deformity, whereas in the fore legs we usually find any accompanying disease below the bent part. It is not uncommon to find in a hind limb a fetlock “shot over” and a spavin on the hock. It is still more common in a fore limb to find a bent knee and a diseased navicular bone. For convenience, I will now disregard the hind limb, and apply my remarks merely to what are termed “bent knees.” Sometimes only one leg is affected, sometimes both. When only one is affected it is almost positive evidence of the existence of disease in some other part of the leg, and that of a painful nature, and not of recent origin.

It has been said that foals have been born with bent knees. I never saw one; in fact, I never saw bent knees in a horse that had not done work or had not met with an accident. Concerning, then, the congenital origin of bent knees, I can only say that as animals may be foaled with five legs, I am not prepared to deny that they may be born with bent legs.

No cases are more common in the horse than accidents and diseases of the foot, accompanied by great pain. When they are of short duration we seldom notice any “going forward at the knee,” either as an accompaniment or as a sequel. When, however, foot cases are protracted and painful, and lameness of even slight intensity exists, bent knees are a common sequel. Few, if any, old cases of navicular disease can be found without bent knees. Protracted cases of “sand-crack” lead to the same condition, as also do cases of corns and other injuries. The cure of the corns and “sand-cracks” is always followed by improvement in the position of the knee, and usually, if care be taken, by complete restoration of the position of the limb. In cases of navicular disease every one must have noticed the remarkable manner in which bent knees improve or disappear after neurotomy. The worst case of bent knee I ever saw was in a grey horse that had trodden upon a large nail, inflicting very severe injury to the foot. For months no weight was placed by the animal on the injured limb. When the wound in the foot had healed, and all pain ceased, it was found that the knee could not be straightened. Complete flexion could be made, and no disease of the joint detected. The only explanation of the condition was that the flexor

tendons had contracted, so as to adapt themselves to the new angle formed by the metacarpal and radial bones. The treatment adopted was to turn the horse out to grass with a shoe on the foot of the deformed leg, supplemented by a projection at the toe having an upward curve. The shoe was periodically removed, and the curved projection adjusted to the action of the animal. In the course of a few months the leg was nearly as straight as the other, and quite as sound. The effect of the treatment could only be to put a strain on the flexor tendons during progression, especially at the moment during which the toe revolved on the ground. To this gradual and frequent stretching the tendons yielded.

It may be stated as an anatomical truism that the length of a tendon is exactly proportioned to the distance between its place of insertion and its point of origin, and it is an equally true physiological fact that the length of a tendon varies as that distance varies. Just as a bow can only act when its string is at tension, just so a muscle can only contract effectively when its tendon is "taut." So soon as, by an alteration in the position or angle of two bones, a tendon becomes relaxed, so soon nature commences to contract it to its new conditions. Were this not so, a very slight deviation in the relative position of two bones would render useless all the muscles attached to them. In the case of the grey horse I have just referred to the flexor muscles were able to flex the limb as usual; but had not their tendons contracted, the action of the muscles would simply have been expended upon a relaxed tendon, and their power never have been transmitted to the bones.

This contraction or shrinking of a tendon is a passive and healthy action; it is a physiological alteration, not a pathological change. It is a secondary condition, dependent upon some previous change, and should suggest our looking for some primary active cause which may require professional treatment.

Anything which causes a horse to rest his leg with the knee bent must relax the flexor tendons. If the position be continued a gradual and passive contraction of the tendons follows, and a more or less permanent alteration of the line of the limb takes place. Pain in the feet, in all its varying degrees of intensity, acts in this way: to relieve the organ, the heel is raised and the knee thrown forward, consequently a relaxation of the flexor tendons results. So general is the connection between foot-lameness and bent knees, that I venture to say that in seventy-five per cent. of cases the two co-exist. I go further, and say that the mere existence of bent knees is of itself *prima facie* evidence of foot-lameness.

One of the most interesting and instructive illustrations of this came under my notice not many years since in London. A friend of mine had at that time veterinary charge of a large stud of horses. Two years only had passed since they were purchased—a sound, young lot of horses—when it was noticeable that a large number were going over at the knees. Examination showed that about seventy per cent. were bent, many in a most marked manner. My friend reported that the cause was a bad system of shoeing, and I was afforded an opportunity of testing his opinion. In nearly every case corns either existed or had existed. In many cases corns were present on both heels of both fore feet. In no case could any other cause be detected. Similar horses did similar work in dozens of places, but remained free from bent knees. In only one thing were these horses peculiar—in being shod on a system rigorously carried out, and which must inevitably lead to injury. The system was to lower the heels as much as possible, with a view to frog pressure; to shoe short, for fear a shoe was pulled off; and to shoe close, because the fine nail-holes rendered it necessary.

Now I submit that no three rules could be framed so likely to result in

damage to the heels of the foot. Some few of these animals I was enabled to trace, after they were sold, as uselessly lame and deformed. One very bad case I can refer to as, when properly shod, becoming again sound, and nearly straight on his legs, although continuing to work hard in a laundry van. Just note the sequence in this huge experiment of cause and effect. The practice was, over-lower the heels, shoe short, and shoe close; the result, corns and bruised heels. The next stage, tender and lame feet, followed by bent knees and contracted tendons. The mischief, however, did not stop here: work still went on, and the knees became more bent—not only was the metacarpal bone altered in position, but the pasterns were thrown into the perpendicular, and ring-bones appeared in numbers probably never before witnessed in a stud of the same size.

In this case cause and effect seem to me so clear as to leave no room for doubt. In some bad cases of contracted tendons tenotomy has been performed, and, providing that adhesions between the tendon and its sheath do not exist, no difficulty is experienced in extending the joint. I mention this merely to remark that ligaments do not apparently contract when they are relaxed by the continued flexion of a joint. The power of gradually shortening or lengthening possessed by a tendon seems, then, not to reside in ligaments; and this confirms me in my statement that such property is only possessed to enable muscle to act effectively. I have said there are cases of bent knees with no apparent disease accompanying them. Such cases I take to be due to excessive work. The defect follows from hard work, through precisely the same steps as in the other cases. The sequence, I take it, is hard work = tired muscle, relaxed muscle = falling forward of knee; this continued, we have the gradual contraction of tendon that must follow the altered position of the knee. How many of such cases have been blistered or fired in the region of the tendons? Will anyone say why, when such treatment is adopted, the operator should not be proceeded against for cruelty to animals?

In conclusion, just one word concerning hind legs. Here the flexion of the joint analogous to the knee does not relax the flexor tendons. When a horse rests a hind leg from weariness or pain, and the flexor tendons are continuously or constantly relaxed, the joint that is thrown forward is the fetlock. Should contraction follow, the pastern bone is straightened and the fetlock thrown forward. We see this condition as the result of sand-crack sometimes, but most commonly in association with spavin. An alteration of the angle formed between the metatarsal bone and the tibia, if it could occur, would not be very noticeable; besides which, the hock is so related to the stifle joint that the angle of one cannot be altered without a similar alteration of the other. The relative position, then, of the metatarsus is more stable than that of the metacarpus, and consequently a "shot fetlock" behind is a more conspicuous deformity than one in front, owing to nearly all the deviation being in the pastern.

ALFRED BROAD, *Hon. Sec.*

SOUTHERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

ON March 30th, the annual meeting of this association was held at Laker's Hotel, Redhill. The President (Mr. G. Fleming) took the chair, and there were also present Messrs. J. B. Martin, of Rochester (hon. sec.), N. Penberthy, R.V.C.; Elston Edgar, Dartford; F. W. Wragg, London; R. A. Stock, Lewes; E. A. Hollingham, Redhill; F. Hogben, Folkestone; J. E. Elphick, Ash; F. R. Ingersoll, P. A. Rock, M. M. Rock, J. Gibbs, H. J. Hancock, James Roe, etc.

Mr. MARTIN read several letters and telegrams from members expressing regret at their inability, through business engagements, to attend this meeting, and their good wishes for the continued and increased prosperity of the association. The Hon. Sec. introduced the question as to the desirability of joining the National Veterinary Association, remarking that no doubt by organisation all over the country, and being properly represented at the National Council, the status of the veterinary profession would be vastly improved.

The PRESIDENT remarked that the importance of such a body as a National Association had been largely manifested in every profession, but perhaps it had been most marked in the British Medical Association. The National Veterinary Association had been established on the same footing as the British Medical Association, which had a large number of local associations, and met once a year at different places, when not only political questions were treated, but the more important professional matters were discussed at great length, and by the ablest men in the medical profession. One great object which was gained by a National Association, was that its opinions were usually respected as representing the opinions of the entire body, and, therefore came with very great weight upon the public mind. Then it brought members of the profession together, and cemented the bonds of friendship in the strongest possible manner. There was no doubt the veterinary profession, when they reflected upon the great animal wealth of this country, and the very high rank which our cattle took all over the world, and also the important sanitary questions which came before the profession, might expect as much from a National Association as had been derived from the British Medical Association. The fact of the association having decided to hold its first meeting in London would give the movement an excellent start. Within the last twenty years their profession had been rising very rapidly indeed in importance. If they showed that they were worthy of confidence, and did their utmost to protect and advance the public interests, they might rely upon it the public would assist them in their efforts. In conclusion, the President commended the National Association to the members present as being worthy of their support.

Mr. PENBERTHY explained that the title of the association—"The National Veterinary Association"—was decided on at a meeting of representatives of various associations held in January last. Every member of the Highland Society of Scotland had had a circular asking him for his support, and the response had been quite up to anticipations. It was proposed to hold the first meeting of the association on the day following the annual meeting of the Royal College of Veterinary Surgeons, and the commodious room of the Society of Arts had been secured for the purpose. A profession so numerically small as the veterinary profession, required unanimous effort, if any real benefit was to accrue from such a movement as this. It was his object at this meeting to bring the National Association before their notice, and he had no doubt it would have their support.

The HON. SEC. thought it better to make a formal proposition.

The PRESIDENT accordingly proposed, and Mr STOCK seconded, a resolution, which was carried unanimously, expressing the desire of this association to aid in the promotion of the objects of the National Association, by giving the same its cordial support, and all those present become members, the subscription being half-a-guinea per year.

The next business was the nomination of representatives to serve on the council of the National Association, and on the motion of the HON. SEC., seconded by the PRESIDENT, it was resolved to support Mr. Woodger (president of the Central Society, London), Mr. Wragg, and Mr. Barford, of Southampton.

Mr. Stock and Mr. Elphick having exhibited some interesting morbid

specimens, and a discussion having taken place upon them, Mr. EDGAR proceeded to read a paper on "Swine Fever," in which he dealt with his subject in a most exhaustive and lucid manner, minutely and carefully treating of every stage of the disease.

The PRESIDENT said he was quite sure they would all agree with him, that the very scientific paper which they had just heard read deserved their very warmest thanks. It was just about as good a description of the malady as could well be drawn up in such a short space. Personally he had listened to the subject with the greatest amount of interest, because he had the good fortune, when attached to the Royal Engineers at Chatham in 1875, to make Mr. Martin's acquaintance, and he had the opportunity, through Mr. Martin's kindness, of seeing very much of the disease and making a number of *post-mortem* examinations. What struck him at the very first *post-mortem* in 1875, was the absence of those characteristic lesions which were found in human Typhoid Fever. He saw Dr. Klein some time afterwards and he quite agreed that the malady, although in some respects it resembled human Typhoid, yet in other respects was different. With regard to its relations with other diseases, he confessed he was at a loss. They knew that of all the animal species the nearest to the human species in organization was the pig. He himself entertained the opinion that this Swine disease distinctly belonged to the porcine species. He could not mention any analogous disease, except it be the Human Plague, which in many of its features it resembled, while in other points it was widely divergent. The appearances of the malady had been described by the essayist most accurately. He (the President) could not bring himself to think that it was a variolous disease, and he was sure, as far as one could judge, that it was one which was peculiar to the porcine species, though it might be transmitted to other species. The essayist had shown them that the disease had been transmitted to the rabbit, and that it could be transmitted to the fowl. It was most important that an investigation should be made of this malady, now that they knew there were methods of cultivating the poison of disease, which rendered that poison its own antidote. The remarks of Mr. Edgar were amply justified by his pathology. They ought to encourage the study of pathology. The Government did not assist them, but he was still in hopes, with our Association and in other ways, that the time was not far distant when they should be able to pursue investigations largely assisted by Government or by some of the wealthy bodies in London. The President pointed out the extreme importance of the malady from a sanitary point of view. There was no evidence, so far, that the flesh was obnoxious; but, looking at the matter from a practical point of view, they could only consider the danger connected with every pig that exhibited the slightest trace of disease. With regard to inoculation, their means of disinfection were so limited and imperfect, and the difficulty was usually so great, that they could not always rely upon the sanitary measures generally employed being successful. The removal of the fæces from the yards and other matters in the drains, almost pointed out the impossibility of stamping out this disease by known methods. He should like to see in every district large kilns for the destruction of the carcasses of diseased animals by fire. No doubt the ancient Jewish method of cleansing by fire was the best. There should be large cremators, in which the carcasses of all animals that died of contagious maladies should be destroyed, to avoid the germs of the diseases escaping. In conclusion, the President said he trusted those present, as practical men, would favour the meeting with their opinions as to this malady.

Mr. HOLLINGHAM said he had seen a disease lately which seemed very similar to Swine Fever, only that it was not a fatal malady. There was a similar redness to that which had been described by Mr. Edgar. The only

difference he could observe between the two diseases, was that there was no purging. The appetite was entirely lost, and when the animal was moved about and hustled at all it would tremble very much and show signs indicative of pain. The breathing was very hurried, and the temperature 106° or nearly so. He attended these cases, and the animals improved, and ultimately recovered. There was great thirst.

Mr. STOCK said he had had several cases like those referred to. Where he was not quite certain, he had isolated the animals. He attributed the complaint wholly and solely to the food—perhaps in giving salt or soda, and causing a slight irritation of the stomach and intestines.

Mr. MARTIN stated that he had seen a great deal of Swine Fever. Mr. Edgar had so exhausted the subject, and dealt with it in such a clear and practical manner, that he did not think they could discuss it in any other way. They ought to congratulate themselves upon having a member among them capable of reading such a paper. He had read Dr. Klein's paper of 1877, but he (Mr. Martin) did not believe he had seen in any of their papers such a minute, scientific, and practical description as Mr. Edgar had given them. To them as practical men—and, in fact, to all practical veterinary surgeons throughout the country, particularly in the country districts where their opinions were sought—the paper would be of the utmost importance to them to refer to. As to the scientific portion of it, they could not discuss it, and they must leave it to those who had sufficient time to examine this matter microscopically. He had himself differed from some men occasionally in those cases where one had to decide at once, and where one did not have the opportunity of making a proper examination. You were to decide for the benefit of the magistrates whether it was Swine Fever or whether it was not; and sometimes the opinions of the profession clashed in this way, but they had better err on the right side, and that was to kill the animal. In order to stamp out the malady, this was the only means of doing it, where there were any signs of disease. No doubt there had been hundreds of cases in which animals had been destroyed for Swine Fever, when it had not been Swine Fever at all. Typhoid Fever was not the correct term. The Privy Council were aware, as a fact, that in hundreds of cases animals had died or were killed which were suffering from other complaints, such as taking a quantity of salt and other substances, and that their destruction was due to an error on the part of the veterinary surgeons. Some of them might be called in to give an opinion, and where they had given an opinion hastily, and other men were called in afterwards, we know that sometimes the latter were unscrupulous enough to give their opinion that it was not a case of Swine Fever, and they had thus raised their reputation at the expense of others. He had no doubt that Mr. Edgar's paper would be read by all the profession. It would prove a sort of manual of reference to those who had not had the opportunity of studying the symptoms of the disease that some of them had. They should one and all make themselves practically acquainted with the symptoms and also the *post-mortem* appearances, to enable them to form and give a sound opinion upon the malady. In many cases where he had been called in he had been sure it was Swine Fever, but there had been an absence of any redness or any tint on the skin. In the most marked cases of Swine Fever there were two symptoms present: but he was speaking of very mild cases, where there was an absence of any external symptoms, such as this tint on the thighs and other parts of the skin, to guide you in giving a correct diagnosis, unless you had the assistance of a microscope. As practical men they could not spare the time to enter into these minute examinations, but must leave the matter to scientific men who could do so. As regarded purging being one of the symptoms, this had been quite the opposite to his experience; he had generally found the pigs were very costive. Why the public were induced to

give notice of disease was the compensation which was made to them in respect of the slaughtering of their animals. Dr. Klein, in treating the disease, compared it in a scientific way to know the difference between Typhoid Fever in man and pig, but as far as they were concerned they could not determine it in the least. They had not the time that they had at colleges. Perhaps Mr. Penberthy would say a few words.

Mr. PENBERTHY said he endorsed all that had been said by the previous speakers in favour of the paper. The manner in which the subject had been treated had been most thorough, and the paper had largely diverged from the papers which had frequently been brought before the association in special diseases. It had taken up a line of thought of its own, and had suggested something for them to discuss. As Mr. Martin had stated, the most important thing for them to notice was that which had a bearing on everyday practice; in all diseases in which they had the power of slaughtering animals they wanted to know, both for the protection of themselves and the public, the time when to order slaughter and when not to. He thought there was a tendency to turn their attention to what was called the practical part of their wants, for unless they began at the proper foundation they should never arrive at such a conclusion as to know when to slaughter and when not to. Mr. Edgar had thrown out a hint, and asked them to discuss the relation of Typhoid Fever to variolous diseases. He (Mr. Penberthy) must say, as far as he was concerned, he had long considered that Typhoid, or so-called Typhoid, to bear a very close resemblance to what were known as these diseases. The President thought it was not of this character. As to the next matter, that of protective inoculation, he for one perhaps might be considered rather old-fashioned; he thought they must take a great deal of what had come from M. Pasteur with a little salt. Those of them who were reading the medical journals at the present time, would find the English observers did not agree with all points of M. Pasteur's experiments. It had been disputed with respect to Anthrax fluid that it neither produced protective inoculation, nor was it safe to be used in the hands of ordinary observers. There was no reason why any of them should not use a microscope. He was not sure they were not allowed to make experimental studies; he believed the Act allowed an inspector to slaughter one animal to satisfy himself before giving his diagnosis.

Mr. EDGAR: You have power to slaughter on suspicion, on obtaining the consent of the local authority.

Mr. STOCK: It is the owner generally who says, "I have got Swine Fever here," and then the thing has to be settled. You cannot come to a decision within several days, and the pigs might die in much less time, and then you would not get compensation. Did he understand that old animals were equally susceptible to the disease as young animals?

Mr. EDGAR said all ages and breeds were alike liable to contract the disease, were but affected in different degrees. The older the animals the less severely they suffered, and the less was the fatality.

Mr. ELPHICK mentioned a case which had been told to him by a breeder of pigs near Ash, who said he had found the disease to be associated in large towns rather than in the country, and it was a question whether it arose from the food the animals partook, or to the bad, unsanitary conditions in which they lived.

Mr. HOLLINGHAM: It is the opinion of some of our best men that no amount of unsanitary arrangement seems to produce the disease at all.

Mr. EDGAR, replying to Mr. Elphick, remarked that if they said that, they did away with the specific nature of the malady entirely. When fever broke out in a place, and they were unable to trace it, they must not admit at once that it arose on the spot; they must admit their inability to trace it. He did not

admit spontaneous origination in any way himself. It was this question that induced him very strongly to write this paper. Was the disease or was it not a specific malady? He should like to hear the result of that. When they got into the witness-box and contradicted each other, it made one or the other of them look very ridiculous.

The PRESIDENT remarked that with regard to the analogy to, or identity of this disease with the Variola, Small-pox in man was marked by the presence of the pock, so that if they looked upon this disease as Variola they must find some indication of the eruption. There were a number of cases—some of them have no eruption—but they had the same thing in Cattle Plague. The eruption on the skin was not to be taken as conclusive of its identity with or analogy to the Variola. A great deal depended on the condition of the animal receiving the poison and upon the circumstances in which the animal lived, and to a great extent also upon the activity of the virus itself. He believed all zymotic diseases were due to a germ, and that the greatest minds of the age were of the same opinion. It was all-important they should understand the germ theory of diseases. This was the first time in the history of man that they had been able to arrive at a correct idea of the causation of contagious disease. So firmly did he believe that every specific malady had its own peculiar germ, that he did not think anything could change his opinion in that respect. You might as well say you could produce fermentation without the yeast fungus, as to produce a specific malady without its specific germ. Certainly, they must accept every new discovery in science with the greatest care, until it was amply corroborated, and he thought if there was anything better established than another now it was the germ theory of disease. It was a fact that would go a long way to enable them to stamp out these diseases ultimately. It would be of very great importance if the veterinary surgeon could, as no doubt he should, resort to the test of inoculation; and if a rabbit would take it from the pig, and provided the symptoms were well marked, the circumstance would prove of the utmost value to the inspector. He only threw this out as a hint, because they did not know anything of the virulency with which the rabbit was attacked. As to contagion, that must be determined experimentally. Everything in the way of pathology should be tested in the laboratory as much as possible. In their daily practice it was often impossible to trace the source of disease or to pronounce definitely as to its spontaneity. He held with Mr. Edgar that certain diseases were due to bad sanitation; but not so the zymotic maladies.

Mr. ELPHICK said in the case he had mentioned, it was not his own opinion which he expressed, and therefore there was no danger of his going into the witness-box in opposition to Mr. Edgar.

Mr. EDGAR observed that the food was undoubtedly a great source of danger, but it must undoubtedly contain morbid matter to produce the disease. He believed yards had been kept in a dry state for two months and then produced the disease; but it was uncertain. He should think the case reported by Mr. Hollingham was a very mild attack of Swine Fever.

On the motion of the PRESIDENT, a cordial vote of thanks was then passed to Mr. Edgar for his very able paper.

On the proposition of Mr. MARTIN, seconded by Mr. FLEMING, Mr. Wragg was unanimously elected president for the ensuing year. The hon. sec., treasurer, and vice-presidents were re-elected, and Mr. H. Davis, of Blackheath, was elected a member of the association.

On the proposition of Mr. EDGAR, a hearty vote of thanks was accorded to Mr. Fleming for his valuable services as president during the past three years. It was decided to hold the next meeting of the association in June next, at Maidstone. The business proceedings of the meeting terminated

with the usual compliment to the chair. The members then dined together—Mr. Fleming again presiding.

NEW VETERINARY COLLEGE, EDINBURGH.

At the present time, when so much attention is being directed to the necessity for increased endowments for the universities, it is worthy of notice that the veterinary profession is making great headway in the city without any Government support. It was a matter of regret that in 1873 the arrangements for veterinary teaching in Edinburgh were disturbed, but the course which Mr. Williams then took has proved a very successful one. The old Gayfield House was acquired for a college, and in 1873 sixty-one students were enrolled. In 1876 the number had increased to 73, three years afterwards there were 104, and during the last winter session 154 were enrolled. With the view of making the teaching staff thoroughly proficient, an extra Chair for Natural History was added two years ago—the first that has been established in connection with a veterinary college in Great Britain. The present building having proved too small for the increased number of students, Principal Williams determined to proceed with the erection of a new college, and ground was acquired in Leith Walk for this purpose, the site being that formerly occupied by the Tramway Company, and some other old buildings which have yet to be demolished. The structure, which will face the main street, will be a large building four storeys in height. On the ground flat are three shops. On the second flat will be accommodated the resident veterinary surgeon and others in charge of the college. The third and fourth flats it is intended to let; one of them it is proposed to make a clubhouse for students. Passing through the entrance, a causewayed road, fifty yards long, will be formed right through the yard to the back gate, which communicates with Montgomery Street. To the rear of the shops in the main building are a public office, consulting-room, and surgery. The remaining parts of the building form three parts of a square, and the erections are two storeys in height. Along the north side on the ground floor are seven boxes for horses, an apartment specially fitted up for bathing the horses, and at the end there is a cow byre. At the east end is a large forge, where a dozen horses may be shod at a time. There is also a chopping and boiler-house. The entrance from Montgomery Place divides the *post-mortem* room from the forge, while along the south side of the square are ten more boxes and kennels, all heated with hot-water pipes. Over this part of the building are two laboratories with retiring-rooms; one of them is fifty feet in length, and is lighted by side windows, as well as from the roof. At the north-east corner on the same floor is a dissecting-room, which will be fitted with all the latest improvements, and is admirably lighted. Over the forge is a large reading-room for students, and in the north-east corner a small class-room, capable of accommodating one hundred students. Next to this on the north side are the bone-room, the museum with gallery around, and adjoining a retiring-room for the professor, while at the end is the largest lecture-hall, capable of holding 250 students. Through all these rooms will be conducted hot-water pipes. A gallery is carried along the north side from which the horses trotted in the square can be seen. The sanitary and ventilating arrangements will be on the most approved principle. The college and buildings cover a large area, and will cost over £14,000, which will be borne by Principal Williams. The works are expected to be finished for the opening of classes in October.—*Edinburgh Daily Review.*

GLASGOW VETERINARY COLLEGE.

THE winter session of this institution terminated on April 13th, and on the 16th, 17th, 23rd, and 24th the oral examinations of the Royal College of Veterinary Surgeons were conducted within the museum of the college.

The candidates for diploma were also subjected to a rigid practical examination on horses, cattle, and sheep, selected and brought to the college for that purpose.

The Board of Examiners included—Mr. George Fleming, F.R.C.V.S. ; Mr. J. Roalfe Cox, F.R.C.V.S. ; Professor Duguid, F.R.C.V.S. ; Professor Pritchard, M.R.C.V.S. ; Mr. J. Vaughan, F.R.C.V.S., London ; Mr. W. A. Taylor, F.R.C.V.S., Manchester ; Mr. George A. Banham, F.R.C.V.S., Cambridge ; Mr. Finlay Dun, F.R.C.V.S., London ; Mr. W. B. Walters, F.R.C.V.S., Army Veterinary Department ; and Mr. R. Rutherford, M.R.C.V.S., Edinburgh.

The following gentlemen were also present as *ex officio* members:—Principal M'Call, Professors Knox, Cooke, and Macqueen, Glasgow Veterinary College.

The diploma of the Royal College of Veterinary Surgeons was obtained by the following candidates:—Mr. Henry Tweedley, Barrhead ; Mr. Job M. Johnson, Belfast ; Mr. James Spalding, Blairgowrie ; Mr. Alexander Brown, Neilston ; Mr. Thomas Greene Sherwood, Belfast ; Mr. John Francis Hayes, Portree ; Mr. Tom Marriott, Warwick ; Mr. James Laithwood, Congleton ; Mr. John Reid, Beith ; Mr. Alex. Brown, Holytown ; Mr. John Holland, Dublin ; and Mr. John Baxter, Overtown.

Twenty-four students presented themselves for the second professional examination, of which number twenty-one passed, namely:—Messrs. William Macdonald, Campbeltown ; R. H. Gilmour, Ballymoney ; Samuel M. M'Conechy, Islay ; Archibald Edgar, Port-William ; Andrew Stewart, Paisley ; William G. Jones, Pwllheli, North Wales ; Robert Yates, Glasgow ; Finlay Kerr, Glasgow ; A. H. Mackeand, Port-William ; A. A. Leckie, Dumfries ; Alexander Murdock, Drogheda ; Alexander Reid, Magheramorne, County Antrim ; James Hart, Dromara, County Down ; R. D. Dove, Dundrum, County Down ; William C. M. Smith, Porkhill, County Armagh ; Alexander Paton, Troon ; Alexander C. Forbes, Glasgow ; Robert Anderson, Holytown ; James K. Calderwood, Paisley ; R. P. Houston, Tynan, County Armagh ; and John Steel, Cumnock, Ayrshire.

Four students were also examined for the first professional examination, of whom the following passed:—Messrs. Alexander Marshall, Glasgow ; Joseph Ward and William Ward, Manchester.

Medals granted by the Highland and Agricultural Society of Scotland, Professor Allen Thompson, London ; Mr. Robert Walker, of Lethamhill ; and Principal M'Call, and certificates of merit by the College, were awarded in the different branches of study as follows :—

Horse pathology (written examination).—Gold medal (Principal M'Call), Alexander Brown, Neilston ; silver medal (Highland and Agricultural Society of Scotland), John P. Hayes ; first-class certificates, Messrs. Laithwood and Marriott ; second-class certificates, Messrs. Spalding, Hirst, and Brown.

Cattle pathology (written examination).—Gold medal (Principal M'Call), James Laithwood ; silver medal (Highland and Agricultural Society of Scotland), A. Brown, Neilston ; first-class certificates, Messrs. Hayes and Larkin ; second-class certificates, Messrs. Holland, M'Nair, and Frew.

Practical examination of horses as to soundness, age, manipulation, etc.—Gold medal (Principal M'Call), Tom Marriott.

Practical examination of cattle and sheep as to age, operations, etc.—Gold medal (Mr. Robert Walker), Harry Tweedley.

A special prize, consisting of a case of instruments, presented by Mr. Campbell, M.R.C.V.S., Kirkcudbright, for the best essay on "Inflammation," was awarded to Mr. John F. Hayes.

Histology and physiology.—Silver medal (Highland and Agricultural Society of Scotland), Mr. Andrew Stewart; first-class certificate, Mr. Jones; second-class certificates, Messrs. Edgar and Dove.

Anatomy (special and comparative).—Silver medal (Highland and Agricultural Society of Scotland), Mr. Andrew Stewart; first-class certificates, Messrs. Houston, Dove, and Jones; second-class certificates, Messrs. M'Donald, Anderson, Kerr, Mackeand, and Edgar.

Best oral examination on anatomy, physiology, and histology.—Gold medal (Professor Allen Thomson), Mr. Andrew Stewart.

At the close of the examinations the President of the Royal College of Veterinary Surgeons (Mr. George Fleming) intimated that Messrs. Jones, Stewart, Dove, Kerr, M'Donald, Edgar, and Houston had passed with great credit.

MONTREAL VETERINARY COLLEGE.

THE examinations of this institution were concluded by the final oral examination by the Board of Examiners appointed by the Council of Agriculture, consisting of the following gentlemen:—Messrs. F. S. Billings, M.V.; Williamson Brydon, V.S., Boston, Mass.; C. J. Alloway, V.S., Montreal; J. A. Couture, V.S., Quebec; A. McCormack, V.S., Ormstown; Chs. Levesque, Berthier-en-haut, and Dr. Geo. Leclerc. The following gentlemen were present and assisted in the exercises:—Hon. G. Ouimet, Commissioner of Public Instruction, in the chair; supported by Prof. R. P. Howard, Dean of the Medical Faculty of McGill University; Prof. Beaudry, representing Victoria University; Mr. J. M. Browning, Vice-President of the Council of Agriculture; Dr. Geo. Leclerc, Secretary, and Rev. Father Pilot, Messrs. W. S. Blackwood, A. Sommerville, and Casgrain, the Educational Committee of the Council; Prof. Osler, Prof. Daubigny, Dr. Sutherland Baker, and a large number of visitors.

Hon. Mr. OUIMET spoke of the good work done by the College, and proceeded to distribute prizes and diplomas, complimenting the recipients on their success.

The following students passed in the undermentioned subjects in order of merit:—

Botany, Prof. J. W. Dawson, McGill College—Scott, Durfee, Lamb, Mahon, Sparks, Magor, Keys and Abbey.,

Chemistry, Prof. Girdwood, McGill College—Blanchard, Kingman, Ball, Davis, Cross, and Mayo.

Physiology, Prof. Osler, McGill College—Blanchard, Ball, Kingman.

Materia Medica, Dr. James Bell, Veterinary College—Kingman, Bancroft, Blanchard, Ball, Cross, Davis, Klock.

Anatomy, M. C. Baker, V.S., Professor—Brodie, Bell, Clement, Pomeroy, O'Connell, Henry, Duncan, Robins, Bancroft.

Practice of Veterinary Medicine and Surgery, and General Pathology—D. McEachran, F.R.C.V.S., Professor—Bell, Clement, Brodie, Henry, Pomeroy, Duncan, O'Connell, Bancroft, and Robins.

Physics, Prof. Girdwood, McGill College—Lamb, Durfee, Scott, Hoare, Mahon, Magor, Abbey, Keys, and Sparks.

French Classes.

Botany, Prof. Roy, Victoria College—A. Beauchamp, T. Beauchamp, Brosseau, Fortin, Lapointe, Piche, Rouif, Turcot.

Physiology, Prof. Beaudry, Victoria College—Morin, Labelle.

Chemistry, Prof. Munier, Victoria College—Morin, Labelle.

Obstetrics, Prof. M. Daubigny, V.S., Veterinary College—Crevier, Paquin, Drouin, Pilon.

Materia Medica, M. Daubigny, Veterinary College—Paquin, Crevier, Drouin, Pilon.

Anatomy, M. Daubigny, Veterinary College—Paquin, Crevier, Drouin, Pilon.

Practice of Veterinary Medicine and Surgery and General Pathology, M. Daubigny, V.S.—Paquin, Crevier, Drouin, Pilon.

The following candidates passed the examinations successfully and received the diploma of the College :—Messrs Brodie, Bell, Clement, Crevier, Henry, O'Connell, Pomeroy, Paquin, and Robins.

Prizes.—English Classes.

The following prizes were awarded :—

Seniors—Best general examination in all subjects—Silver medal, the gift of the Council of Agriculture, won by Jas. Brodie.

Practice of Medicine and Surgery—Valuable Microscope, the gift of David Morrice, Esq., won by Wm. Bell ; 2nd prize, A. W. Clement.

Anatomy—First prize, Jas Brodie ; second do., Wm. Bell.

Practical Dentistry—Instruments, the gift of Williamson Bryden, Esq., V.S., won by H. J. O'Connell.

Juniors—*Materia Medica*, H. C. Kingman:

Anatomy—First prize, H. C. Kingman ; second do., M. G. Blanchard.

Practice of Medicine and Surgery—First prize, A. C. Kingman ; second do., E. P. Ball.

Botany—Gift of Prof. Dawson, won by W. F. Scott.

French Classes.

Best general examinations, silver medal, the gift of the Council of Agriculture, won by Fred Paquin ; second prize, valuable instruments, the gift of L. H. Massue, Esq., M.P., President of Council of Agriculture, won by E. C. Crevier.

Obstetrics, the gift of M. Daubigny, won by E. C. Crevier.

Anatomy, the gift of Geo. Leclerc, M.D., won by Fred Paquin.

At the conclusion of the exercises, Mr. BILLINGS, Boston, complimented the Dominion on having in the Veterinary College of Montreal, the only institution of the kind doing honest work on the continent, and they had reason to be proud of having a gentleman at its head who, more than any one else, combined in his teaching and daily life science and practice, and whose honest efforts were devoted to the elevation of the profession.

Professor MCEACHRAN was next called upon, and took advantage of the occasion to compliment the students on their honest hard work during the session, congratulated the successful and sympathised with those who had failed in passing the severe examinations to which they had been subjected. He pointed out advantages of a high standard of education on account of the rapid progress of the profession. No profession holds out, said he, more

brilliant prospects than did the one they now entered, but they must not expect to gain success without a struggle ; but by perseverance they were sure to succeed. He wished them all success. He next paid a high tribute to McGill and Victoria Colleges, thanked those gentlemen who gave prizes, especially David Morrice, L. H. Massue, Williamson Bryden, and others, also the examiners, who had come long distances to assist them, the Council of Agriculture and the Government of Quebec for their valuable support, and those gentlemen who had assisted them at the examinations.

Prof. R. P. HOWARD, Dean of the Medical Faculty of McGill, next addressed the students and graduates, complimenting them and their teachers on their success, and indicated that the Faculty seeing the necessity for extending the field of study had decided to add to their College a chair of Comparative Pathology, which they hoped soon to see accomplished. He could say for the Medical Faculty that they had always great pleasure in doing all they could to assist the Veterinary College, which was looked upon by them as one of the most useful institutions in the province.

Prof. BEAUDRY next followed in a similar strain for Victoria College.

Dr. OSLER, J. M. BROWNING, and others followed in remarks eulogistic of the College and its Principal.

The proceedings terminated by a vote of thanks to Hon Mr. Ouimet.

A meeting of the Veterinary Medical Association was held immediately after, when the diploma was conferred on Wm. Bell, Jas Brodie, A. W. Clement, E. C. Crevier, Jno. Henry, T. J. O'Connell, B. A. Pomeroy, Fred. Paquin, Paul Paquin, also on Mr. F. S. Billings and Prof. Daubigny.

ONTARIO VETERINARY COLLEGE.

THE examinations were held on March 29th and 30th. A larger number of students presented themselves than on any previous occasion. Forty-six gentlemen succeeded in passing and obtaining the diploma. On the 30th, at twelve o'clock, the friends of the College assembled to witness the presentation of prizes. Among those present may be mentioned his Honour the Lieutenant-Governor of Ontario, Mayor Boswell, of Toronto, Professor Buckland, Dr. Thorburn, Dr. Duncan, Mr. Elliott, President of the Ontario Veterinary Medical Association, the members of the Board of Examiners, Mr. Henry Wade, Secretary of the Agricultural and Arts Association, and many other prominent gentlemen.

Professor Smith, in opening the proceedings, remarked on the extraordinary success of the College during the past session. The junior class had reached the unprecedented number of eighty-six, when the total attendance was one hundred and fifty.

Dr. Duncan then read the names of the graduates, also the Prize and Honour List. The prizes were presented by the Lieutenant-Governor and other gentlemen.

List of Graduates, 1882-83.

Adair, Harry B., Paris, Kentucky ; Addison, James, Newmarket, Ont. ; Armstrong, Frank H., Ausable, Michigan ; Berry, Vinton A., Marion, Ohio ; Blackall, James E., Birr, Ont. ; Blank, Cyrus J., Coopersburg, Penn. ; Bowen, Elmer E., Tyre, New York ; Carter, Robert W., Guelph, Ont. ; Courtenay, Edward St. Geo., Waterford, Ireland ; Crane, John B., Sharen Centre, Ohio ; Dickenson, Samuel S., Zion, Ont. ; Dunn, Charles M., Hamilton, Ont. ; Fisher, James W., Baillieborough, Ont. ; Forbes, Edward R., Toronto, Ont. ; Howe, William R., Cleveland, Ohio ; James, V. L., Springfield, New York ; James, Harry F., Ottawa, Ont. ; Jeffery, George P., Toronto, Ont. ; Johnston,

James, Dundee, Scotland ; Jones, Robert A., Simcoe, Ont. ; Jopling, William, Parkhill, Ont. ; Keeler, Jesse R., Harleyville, Pennsylvania ; Kerr, Thomas, Wingham, Ont. ; McLean, Charles C., Meadville, Penn. ; Murray, George, Ridgetown, Ont. ; Newton, John, Weston, Ont. ; Perdue, John, Orangeville, Ont. ; Plank, Mortimer W., Uxbridge, Ont. ; Poucher, Marshall M., Oswego, N. Y. ; Queen, Tipton J., Salineville, Ohio ; Quinn, John F., Edmundton, Ont. ; Rowe, William R., Bond Eau, Ont. ; Sallade, James W., Reading, Penn. ; Shimer, Allan S., Shimersville, Penn. ; Sine, Merritt W., Stirling, Ont. ; Smith, James F., Port Ryerse, Ont. ; Stallman, Jacob, Rochester, N. Y. ; Stewart, John G., Brantford, Ont. ; Stewart, Robert W., Mt. Victory, Ohio ; Simpson, George W., Mackinaw City, Mich. ; Thompson, Albert E., Strathroy, Ont. ; Thompson, Joseph B., New York ; Van Zant, Henry, Mongola, Ont. ; Whitney, Jonathan C., Allan, Michigan ; Wight, Willard E., Millbury, Ohio ; Schoonmaker, J. H. New York.

Prize and Honour List—Seniors.

Pathology.—Silver medal, McLean, C. C.; second prize, James, H. F.; third, Adair, H. B. Honours—Blank, Blackall, Carter, Dunn, James, V. G., Jopling, Newton, Plank, Sallade, Sine, Stimpson, Smith, Thompson, A., Van Zant.

Anatomy.—Silver medal, James H. F.; second prize, McLean, C. C.; third, Adair, H. B., and Newton, J., (equal). Honours—Dunn, James, V. L., Jeffery, Jones, Jopling, Kerr, Plank, Sallade, Thompson, Wight, A.

Entozoa.—Prize, Newton, J. Honours—Cartier, Dunn, James, H. F., Jopling, Blank, Sallade, Stimpson, Thompson, A.

Microscopy.—Prize, Dunn. Honours—Dickenson, James, V. L., Queen.

Chemistry.—First prize, Jopling; second, Newton; third, Dickenson. Honours—Armstrong, Adair, Bowen, Dunn, McLean, Sallade, Stimpson, Thompson, A., Wight.

Physiology.—First prize, James, H. F.; second, Sallade; third, Dunn. Honours—Adair, Blackall, Blank, Courtenay, Fisher, Jopling, McLean, Newton, Plank, Sine, Thompson, A., Wight.

Anatomical Preparation.—Silver medal, Adair; second prize, James, V. L.

Materia Medica.—First prize, James, H. F.; second, Sallade; third, Sine. Honours—Adair, Dunn, Dickenson, James, V. L., McLean, Newton, Smith.

Breeding and Management of Stock.—First prize, Jopling, 20 dols. in books (by Hon. Commissioner of Agriculture); second prize, James, H. F., 15 dols. in books, (Council of Agricultural and Arts Association); third prize, Adair, 10 dols. in books (by Agricultural and Arts Association).

Gold medal for best general examination, presented by the Ontario Veterinary Medical Association, James, H. F. Honours—Adair, James, V. L., Jopling, McLean, Sallade.

Prizes and Honour List—Juniors.

Anatomy.—Silver medal, Tiffany, L. C.; second prize, Reed, J. F.; third, Butler, G. W. Honours—Blank, G. G., Courtenay, E., Harthill, A., Hewitt, F., Ormsby, J. T., Reed, H. G., Sutcliffe, J., Steenburg, E. A., Wilson, John, Wilson, James, Waldron, H.

Pathology.—First prize, Reed, J. F.; second, Tiffany, L. C.; third, Butless, G. W. Honours—Blank, Courtenay, Cruickshank, Eisenmuir, Graham, Harthill, Hewitt, Kincaid, Livingstone, McArthur, Mason, Ormsby, Parker,

Reed, Shaw, Stork, Steenburg, Sutcliffe, Tenant, Waldron, Wilson, Jas., Wilson, John.

Chemistry.—First prize, Silverthorne ; second, Ardiel.

Physiology.—First prize, Reed, H. G. ; second, Reed, J. H. ; third, Berry W. F. Honours—Butler, Kincaid, G. W., McArthur, W. R., Tiffany, L. C., Wilson, James, Wilson, John, Waldron, H.

The Lieutenant-Governor, having been thanked by the President for presenting some of the prizes, and for his presence among them, was requested to make a few observations, when he said to the President and gentlemen that it gave him much pleasure as Lieutenant-Governor of the province to show by his presence there his appreciation of the Ontario Veterinary College. Judging from all that he had at times heard of it, the high status its graduates had attained, both in Canada and in the United States, the increasing number of its students, greater this year than ever before, this College, in his opinion, well deserved any compliment that the Lieutenant-Governor, as a representative man, could by his presence pay to it. He congratulated the fortunate possessors of the respective prizes, but told them that promising and suggestive of success in after-life though these prizes were, they should not run away with the idea that their future advancement was to-day secured. More experience of life would teach them that if they wished to obtain that success which their worthy President had won, they must, like him, have a knowledge of men as well as of animals, cultivate that courtesy, energy, and judgment in business matters which he had displayed, and which had done so much to place this College and himself in the highly creditable position they now occupied. The veterinary knowledge they were now acquiring was specially useful in Canada, which was the happy and prosperous home of hundreds of thousands of farmers, who, by the increased attention they were now giving to the raising of the best breeds of horses and cattle, were opening up a good field for the profitable employment of those he saw before him. The time was not far distant when, thanks to this College, its President and professors, the reliable and well-educated veterinary practitioner would take the place in this country of the unreliable and dangerous quack. He wished the College and its students every prospect, some of whom were, no doubt, leaving it for the last time this term, but he hoped they would not soon forget the useful knowledge acquired within its walls. (Applause.)

After remarks from the Mayor, the proceedings terminated.

NEW MEMBERS OF THE PROFESSION.

AT the several meetings of the Scottish Section of the Court of Examiners of the Royal College of Veterinary Surgeons, held in Edinburgh and Glasgow, on the 18th, 19th, 20th, 21st, 23rd, and 24th April, 1883, the following students passed their " Final Examination," and received the diploma.

Edinburgh Old College.

Mr. John Beattie	...	...	Longside, Aberdeenshire.
„ Tom King	...	...	Ayr, Ayrshire.
„ Henry Holroyd	...	...	Blackburn, Lancashire.
„ Thos. Cunningham	...	...	Dunedin, Otago, New Zealand.
„ Henry A. Fulham	...	...	Rhyne, Co. Longford, Ireland.
„ *K. I. Urquhart	...	...	Newton-le-Willows, Lancashire.
„ Bernard Valentine Martin			Knightstown, Navan, Ireland.
„ Arthur New	...	...	Amphill, Bedfordshire.

Mr. Chas. Scott Smart	...	Musselburgh.
„ Harrie Malcolm Maxwell...	...	Orton, Waterville, Peterborough.
„ Alex. Adam Waugh	...	Newmarket, Cambridgeshire.
„ Martin Aloysius Brown	...	Wexford, Ireland.
„ I. Rowland Dykes...	...	Wellingborough, Northants.
„ William Hackett	...	Pointoy, Folkingham, Lincolnshire.
„ Geo. Wm. McArthur	...	Meerut, India.
„ Christopher Jones	...	Mallow, Co. Cork.

Edinburgh New College.

Mr. Matthew Horace Hayes	...	Junr. Army and Navy Club, St. James' Street, S.W.
„ Anthony McCarmick	...	Leeds.
„ Arthur A. Stringer	...	Belfast, Ireland.
„ Arthur Plant	...	Bakewell, Derbyshire.
„ Harry Young	...	Brighton.
„ Alex. B. Forsyth	...	Galashiels.
„ William Malcolm Lyon	...	Ayr.
„ David Hamilton	...	Maybole, Ayrshire.
„ Richard Bolster	...	Tralee, Ireland.
„ Frederick Percy Carter	...	Bradford, Yorkshire.
„ Robert Ion Hickes	...	Stockton-on-Tees.
„ William H. Wood	...	Middleton, Manchester.
„ John A. Meredith	...	Carnbroll, Llanymynech, Montgomery.
„ Colin Gresty	...	Tattenhall, Cheshire.
„ William Richard Davis	...	Douglas, Isle of Man.
„ John Airth	...	Arbroath.
„ *Bernard Austin Clancy	...	Dublin.
„ Abraham Edward Hanson	...	Norwood Green, near Halifax.

Glasgow College.

Mr. Job Mugh Johnson	...	Belfast, Ireland.
„ James Spalding	...	Myriside, Blairgowrie.
„ Alexander Brown	...	Neilston.
„ Thos. Freene Sherwood	...	Belfast, Ireland.
„ John Reid	...	Townhead, Beith, Ayrshire.
„ Alexander Brown	...	Holytown, Lanarkshire.
„ John Baxter	...	Overtown, Lanarkshire.
„ John Holland	...	Dublin
„ Henry Tweedley	...	Barrhead.
„ John Francis Hayes	...	Portroe, Co. Tipperary, Ireland.
„ Tom Marriott	...	Shrewley, near Warwick.
„ James Laithwood	...	Congleton, Cheshire.

The following students passed their "Second Examination" on 11th, 12th, 13th, 16th, and 17th April, 1883:—

Edinburgh Old College.

Mr. C. McEachran.	Mr. Henry Barrett.
„ W. R. Davison.	„ B. O. Meek.
„ H. C. Fergusson.	„ *G. Ellison.
„ A. S. Kershaw.	„ Joseph Barclay.
„ F. Airey.	„ James Player.
„ *W. Jeeves.	„ R. C. Irving.
„ W. Kent.	„ James Jeeves.

Mr. C. Ladds.	Mr. F. Bennett.
„ F. Ashley.	„ *John Nicholson.
„ R. Miller.	„ Thos. Butcher.
„ R. O. Stewart.	„ *Charles Cowie.
„ W. F. Doyle.	„ A. W. Barnes.
„ Alexander Wood.	

Edinburgh New College.

Mr. *M. Carroll.	Mr. A. Gledhill.
„ A. F. Durkie.	„ Jas. Purdy.
„ *T. A. Rudkin.	„ D. Charnock.
„ C. Dyson.	„ R. Brizell.
„ J. Richardson.	„ Jos. Forgham.
„ J. T. Crosby.	„ J. Malone.
„ *J. Borthwick.	„ D. Lyons.
„ J. J. Ridley.	„ Jas. Hanbury.
„ W. Berry.	„ J. Dixon.
„ *W. Lothian.	„ A. Spruce.
„ S. W. Martin.	„ *A. Conisbee.
„ Jas. Purdy.	„ A. E. Haslam.
„ *A. Lennox.	

Glasgow College.

Mr. Alexander Paton.	Mr. Andrew A. Leckie.
„ *W. Griff. Jones.	„ Samuel M. McConechy.
„ James Hart.	„ *Archibald Edgar.
„ Alexander Reid.	„ Richard H. Gilmore.
„ *Andrew Stewart.	„ John Steel.
„ Robert Yates.	„ *Robert J. Huston.
„ Alexander Murdoch.	„ Jas. K. Calderhood.
„ *Robert D. Dove.	„ Robert Anderson.
„ *Finlay Kerr.	„ Alexander Cairns Forbes.
„ *William McDonald.	„ William C. M. Smith.
„ A. W. Mackeand.	

The following students passed their "First Examination" on 25th April, 1883:—

Edinburgh New College.

Mr. *R. Rimmer	Mr. D. Keyes.
„ A. Barrow.	„ A. McArthur
„ E. J. Lawson.	„ A. Watson
„ *H. Wilkinson.	„ A. Chamberlain
„ W. Allan.	„ S. Chambers.
„ C. Aggis.	

Edinburgh Old College.

Mr. James Neaves.	Mr. D. Graham.
„ A. E. Paley.	„ G. G. McLaran.

Glasgow College.

Mr. Joseph Ward.	Mr. William Ward.
„ Alexander Marshall.	

* Marked thus passed with Great Credit.

† Marked thus passed with Very Great Credit

Obituary.

THE deaths are reported of T. Burrell, Senr., M.R.C.V.S., London; F. Atkinson, M.R.C.V.S., Wolverston; J. Roberts, M.R.C.V.S., Chipping-Sodbury; G. Scully, M.R.C.V.S., St. Louis, America; R. G. Walters, Newport, Salop; D. Paley, F.R.C.V.S., Dublin; and J. Findlay, M.R.C.V.S., Army Veterinary Department, who died from the effects of active service in the Transvaal, while attached to the Inniskilling Dragoons.

We have also to record the demise of G. Bodington, M.R.C.V.S., who was at one time a member of Council of the Royal College, and was chiefly concerned in organizing the first Veterinary Congress held in this country. The *South Wales Daily News* of April 9th has the following kindly notice of his death:—

“Few persons were so widely known and more generally respected in the Vale of Glamorgan than the late Mr. George Bodington. From Neath to Cardiff, and from Merthyr to the Bristol Channel, he was known by and knew almost every resident. He came to Cardiff from Birmingham, of which place he was a native, in 1857, and from that time to 1879 there were few markets, fairs, or agricultural meetings at Cardiff, Cowbridge, Bridgend, and other places at which he was not present. He was a member of the Cowbridge Farmers’ Club, to which he contributed many valuable papers. He was consulting veterinary surgeon to the Glamorganshire Agricultural Society for many years. He graduated as a member of the Royal College of Veterinary Surgeons in 1846, and was elected a member of Council in 1867, and continued to hold the position until 1871. He resided in Canton for many years, and was for a long time a member of the Canton Local Board of Health. When Canton was amalgamated with Cardiff, in 1875, Mr. Bodington was elected a member of the Cardiff Town Council, and continued to represent Canton until 1879, when he left the district. Before leaving he was invited to a complimentary dinner at Cardiff, which was attended by a large number of the chief farmers, landowners, and others in the neighbourhood, when a handsome illuminated address was presented to him, with other tokens indicating the respect in which he was held. He removed from Cardiff to Blackwater, Hants, where he died a few days since. He was buried at Hawley Church, and his remains were followed by a large number of the residents of Blackwater.”

Veterinary science has sustained a serious loss in the death of Dr. Franciscus Müller, Professor at the Veterinary Institute, Vienna, who recently died at the age of sixty years. Among the many works which have issued from his pen, the best known, perhaps, is his “Anatomy of the Domesticated Animals.” He contributed largely to the *Austrian Quarterly Journal of Veterinary Science*, of which he was, in conjunction with Professor Dr. Foster, editor. He was a Councillor of State, and Chevalier of the Order of Francis Joseph; he was also an Honorary Foreign Associate of the Royal College of Veterinary Surgeons.

Army Veterinary Department.

Gazette, April 21.

Veterinary Surgeon H. A. Woodroffe has resigned his commission.

Gazette, May 2.

Veterinary Surgeon, First Class, R. W. Murray, retires with the honorary rank of Inspecting Veterinary Surgeon.

Gazette, May 23.

Veterinary Surgeon, First Class, J. W. Callow, retires with the honorary rank of Inspecting Veterinary Surgeon.

Another great improvement in the position of the army veterinary surgeon has taken place, thanks to the exertions of Mr. Collins, Principal Veterinary Surgeon to the forces. By Royal Warrant, just issued, Inspecting Veterinary Surgeons are now to have the relative rank of Lieutenant-Colonel, instead of Major, as heretofore; and a veterinary surgeon shall be promoted to the rank of First Class Veterinary Surgeon on completing ten years' service (instead of twelve, as heretofore), of which at least three years shall have been abroad, provided he be recommended for promotion by the Principal Veterinary Surgeon; while a First Class Veterinary Surgeon, after ten years' service as such, shall have the relative rank of Major. The Warrant is to take effect from April 1st.

This is a valuable concession, and was much required. We feel sure that the members of the Department will appreciate it at its full value.

Notes and News.

VETERINARY RECOMPENSES.—On April 2nd, the French Academy of Sciences, at its annual public meeting, awarded the usual prizes. Among those to whom these were awarded, we find our French colleagues occupying a prominent position. M. Toussaint has obtained the Vaillant prize, of the value of 4,000 francs, in recognition of the importance of his investigations into inoculation as a prophylactic measure in contagious diseases. The interest of the Breant prize, equal to 5,000 francs, was awarded to MM. Arloing, Cornevin, and Thomas, for their researches into inoculation as a prophylactic against Symptomatic Anthrax. M. Megnin obtained 1,500 as a prize for his work on parasites and the parasitic diseases of man and domesticated and wild animals.

MEDICAL INSTINCT.—The familiar old precept, "Go to the ant, thou sluggard," has received a new and altogether unexpected application at the hands of M. Delaunay, who, in a paper read before the Biological Society, maintains that in matters of medicine and sanitation, as well as in habits of industry, the lords of creation might with advantage take lessons from ants as well as from cats and dogs. "Warrior-ants have regularly organised ambulances," and no animal is guilty of tolerating the abominations of the cesspool. In rearing their young there are few mammals which could not give a lesson to the fashionable mother of the period, and in diet and in medicine the Faculty might do well to sit at the feet of the so-called brute creation. Every one knows that animals take purgatives and emetics when the need arises, but, according to M. Delaunay, they also deserve the credit of discovering the water-cure. He says:—A dog on being stung in the muzzle by a viper was observed to plunge its head repeatedly for several days into running water. This animal eventually recovered. A sporting dog was run over by a carriage. During three weeks in winter it remained lying in a brook, where its food was taken to it; the animal recovered. A terrier dog hurt its right eye; it remained lying under a counter, avoiding light and heat, although habitually it kept close to the fire. It adopted a general treatment, rest, and abstinence from food. Another case is that of a cat which had the singular fortitude to remain for forty-eight hours under a jet of cold water. On the whole, the Royal College of Physicians, or some similar body, might do worse than establish a special department for the scientific study of the hygiene and the therapeutics of the animal world.

Correspondence, etc.**MEMBERS OF COUNCIL.**

DEAR SIR,—Permit me, through the medium of your valuable Journal, to cordially thank my professional brethren for again electing me to the Council of the Royal College of Veterinary Surgeons.

In soliciting their support, I made known my opinions regarding the more important topics relating to the welfare of our profession, and conclude, from the number of votes recorded in my favour, that those views were approved by a considerable portion of our ranks.

In again thanking my friends, believe me I appreciate the honour of my re-election as one of the highest a lover of his profession can aspire to.—Very truly yours,

Worsley, *May 14th.*

W. WHITTLE.

THE MAY MEETINGS OF THE VETERINARY PROFESSION.

SIR,—Kindly permit me to make a few remarks on the annual meetings of the Royal College of Veterinary Surgeons and of the National Veterinary Association of Great Britain and Ireland.

Members of these bodies come from all parts of the country to take part in these meetings, and very many do so at great expense and much personal inconvenience. Now the meeting of the Royal College of Veterinary Surgeons lasts a little over three hours, yet we see members who will speak for fifteen, twenty, or twenty-five minutes! Surely it is most unreasonable for one individual to be allowed to occupy nearly a sixth part of the whole time of the meeting. A moment's consideration will show how annoying this selfish monopoly of time must be to those who have come, whether great or short distances, not to listen to long, prosy discourses, but for the purpose of hearing opinions which cannot be obtained elsewhere. Common-place and lecture-like addresses are entirely out of order in annual assemblies.

The meeting of the National Veterinary Association was, we may say, rendered far less instructive than it might have been, by this deplorable tendency to verbosity. The ten minutes limit of time for each speaker should be strictly adhered to, and to it there should be no exception, not even for the introducer of a subject. There should be a bell on the President's table, and when the time allotted to each speaker has expired it should be struck on the instant, and he should at once cease.

There is one injudicious rule in the regulations of the National Veterinary Association, and it is that the ten minutes may be exceeded by permission of the President. This opens the door to all kinds of irregularities as to time, and should therefore be expunged. Had it not existed, I and others would have risen on a point of order as soon as any speaker had exceeded by even a few seconds his allotted time; but he might then have appealed to the President, and so have placed the latter in an awkward position; hence no extension should be permitted. But should a speaker be given more than ten minutes by permission of the President? Certainly not. Few will deny that anything new that any speaker has to offer, with which to take up the time of an annual meeting, can be well and fully said in ten minutes, or in much less, or he must have a very roundabout way of expressing his ideas. They who on these occasions speak for more than ten minutes are looked upon by eight-ninths of their audience as bores.

What is the result of allowing any trespass on or violation of the ten minutes limit? The consequence is that members who have come long distances have to listen to long and dreary discourses, and then when they wish to express their views find that the hour for closing the meeting has arrived.

Ten minutes is not a sufficient time for a lecture, but it is more than enough for the expression of the opinions of any individual at our annual meetings, and, if the number of members desiring to speak is large, should be cut down to five; for we attend for the purpose of hearing new and salient facts, placed before us in a concise and simple manner, so that we may all return to our usual avocations wiser, if not better men. All should have a chance to speak, for we want the opinions of many minds, to obtain which is the very aim and object of our annual meetings.

Another important point is that no member should be allowed to speak more than once on the same subject, until all others who wish have done so once.

I beg to offer the foregoing views for the consideration of those who have the direction of our annual and other veterinary meetings, as they embody what is a subject of constant and very general complaint.

Your obedient servant,
VIGILANS.

SIR,—I trust that next year some rule may be adopted for the better control of speakers at the annual meeting. It is most annoying that some gentlemen who pose as fault-finders, and think themselves clever at this, should be allowed so much time in talking what the great majority of the meeting consider nonsense. One speaker, whom I should be sorry to think was in any way representative of the profession, must have occupied nearly an hour in the indulgence of wild, abusive, and even blasphemous language, and on being reminded by the President of the value of time persisted more strongly in his disagreeable, even disgraceful discourse. The President should have been better supported in putting such a rabid, contumacious speaker down. The subsequent vote of the meeting showed that all the time had been wasted, and that those who thought with him were in a minority, as usual.

The meeting, in my opinion, should have taken serious notice of the conduct of those members of Council who, when they find themselves in a minority at the Council-table, endeavour to thwart the wishes of the profession by disloyal action outside. I hope the Council will discover who instigated the Highland and Agricultural Society and the Town Council of Edinburgh to so grossly insult the entire body of the profession.

There are some other matters to which I should like to refer, but must leave them for another opportunity.

Yours truly,

May 12th.

A COUNTRY PRACTITIONER.

THE NATIONAL VETERINARY ASSOCIATION.

SIR,—Feelings of confidence and gratification were experienced when you were announced as first President of the National Veterinary Association, because your earnestness is always enlisted on behalf of the advancement of the veterinary profession.

Through this Association much good should come to the profession, from

inducing its members to think upon the subjects determined upon for discussion, and to improve their knowledge of them. But, from the publicity and size of the meeting, there must be another benefit effected: the public and the sister profession must now be aware that our profession is one capable of handling the subtle questions of pathology as applied to the domesticated animals, and is therefore erudite and scientific.

The idea formulated under Section 2 of Rule II. of the Association, and relating to publication, must also materially assist this great end; and that the recognition of the members of the veterinary profession as scientific and educated men must follow is beyond all doubt, provided that the Council of the Association takes care to publish to the eyes of the world only such parts of the "information pertaining to the Association" as may seem to them to be expressed in fairly good English, and free from elephantine and unintelligible construction.

Just at this time, when so much attention is being attracted to the profession by your strenuous efforts, sir, to raise its professional importance and dignity, great should be the anxiety to prevent any ill-conceived effort being put forward under the ægis of a National Association, as a sample of our education and science.

It was a great gain that the papers submitted for discussion should be taken as read: to one of them it was an act of courtesy, for it is doubtful whether its perspicuity would have been increased by any attempt to read it.

With a style of diction pedantic and cumbersome, one, if possessed of ordinary patience, may deal; but if wedded to this style of expression there be a series of grammatical mistakes, and these occurring in a paper to be produced before a National Association, serious thoughts must arise as to the care that should be exercised in the selection of suitable and competent writers, and to the necessity of guarding against the acceptance of volunteers prepared to write on *any* subject.

It is an unenvied task to neglect the scientific aspect of a subject, and descend to the undignified position of critic of the language in which that subject is expressed; but unless healthy and fair criticism be brought to bear upon such productions of our profession, already travelling quite as fast as its feeble limbs can carry it, ridicule will be our portion, and ignorance, unchecked, will hold a sway inimical to our genuine advancement.

On first attempting to read the paper on "Human and Bovine Tuberculosis; its Communicability," I felt that the title itself was not one that left nothing to be desired; but in the second paragraph my difficulties increased, and I read the string of words commencing, "Modern research having its applicability to disease," etc., etc., and terminating at the full stop after "era," several times. There is evidently a subject to the sentence, viz., "research," but research as far as the next full stop failed to discover a predicate to complete the sense, so I passed on unsatisfied, and attempted to grasp the writer's meaning of the following clause as applied to "Tuberculosis in the human subject:" "For propagation it possesses genetic elements, which act solely and specifically on certain lines *mapped out* for it;" but my endeavour failed.

My difficulties were increased when I read, "If it *is* true [I presume the writer means, "If it *be* true"], and there seems to be doubt of it, that it is due to a micro-organism, having in its constitution special features, peculiar to its class, and just as potent as the bacillus of putrefaction or of *Anthraxis* [why the Latin genitive case?], we are confronted with an *element of danger* which our forefathers would have regarded as symbolic of lunacy on the part of those who entertained these views." My weak intelligence stumbled over "an element of danger, which our forefathers would have regarded as symbolic

of lunacy." I suppose the writer meant that to hold such views regarding the existence of an element of danger would have been to our forefathers a symbol of lunacy, but he certainly makes "an element of danger" "symbolic of lunacy." We are accustomed to assume that "a little knowledge is a dangerous thing," and therefore contains the elements of danger: may it not be, after this, *somewhat* "symbolic of lunacy"? Perhaps my logic is imperfect. I will leave the problem.

On page 3 I arrived at the fact that "each one possesses [the verb is in the singular number, and correct] similar features in construction, and *are* [why is this verb in the plural when the subject is the same as to the previous verb, which is correct?] mainly," etc. etc.

I found, also, the following somewhat deficient: "and the *attempt* to a morphological identity between the two—*i.e.*, human and bovine—is now engaging serious attention." In the second paragraph on page 4 "if there *is*" occurs instead of "if there *be*;" and while grasping at "encapsulate" and "experimentation" my mind wandered to the idea that the "house that Jack built" would perhaps in the immediate future be recognised as the "architectural structure erected by the individual whose baptismal and sponsorial appellation was John."

"Sputa," a substantive, the *plural* of "sputum," is followed by its predicate "*was* selected," in the *singular* number, on the same page near the bottom.

But now I came upon the *solution* of a difficulty. At the bottom of page 4 occur the words, "it was *suspended* in *solution*." The experimenters who effected this should surely not be "aspirants to fame" in vain. I fear, however, that their brains must have been, in the language of our essayist, "highly *taut* and imaginative." If a material be suspended in a fluid it is not dissolved; but if it be dissolved, *i.e.*, in a state of solution, then the material is not suspended.

I was surprised to find on page 5 that because Professors Walley and Williams "had also placed the subject before us in a lucid manner," there is "very little to be added to their contributions to veterinary literature." This is rather a sweeping assertion to make: it sounds like the school-boy's "Shut up." Perhaps I am doing the writer an injustice: he may have meant "on this particular subject," but he did not say so.

I need scarcely trespass any more upon your space in giving evidence in support of my previous statements, unless it were to draw your attention to "*diathetic tendency*;" "soil prepared for *germs* to *hatch*;" a certainly novel discovery in anatomy, viz., "the *vacant space* in the *thorax*," and the assertion that "a *percentage* of animals *become*," etc.

I trust, sir, that you will see that these criticisms are such as the paper, prepared deliberately for publication, demands, especially as it is the first on our list of productions at the National Veterinary Association's meeting, and should be one that ought thoroughly to support our claim to be an educated body, and to commend itself to all educated men as worthy of that body.—Yours faithfully,

CHARLES SHEATHER.

[We believe the paper alluded to was hurriedly written and sent to the printer without correction. The President of the Association did not see it until it was issued for distribution.]

SIR,—Will you kindly allow me, through your columns, to ask those gentlemen who paid their subscriptions to the above Association at the meeting, *and have not received a receipt for the same*, to inform me of it at once, as we fear there are one or two we have omitted to acknowledge.—Yours faithfully,

Downing Street, Cambridge.

G. A. BANHAM.

PROFESSIONAL FEES.

SIR,—Will you kindly inform me in your next issue (and doubtless the information will be valuable to many others) to what sum a qualified veterinary surgeon is legally entitled for attendance and giving evidence before magistrates in petty or quarter sessions, before county-court judges, and before Her Majesty's judges of assize?

As for myself, personally, I have been paid all sorts of sums, and have never yet been able to learn whether there is a fixed tariff or not. Possibly there is no such thing; but, if not, I think there can be no doubt that it would be better for all concerned if it were clearly defined by some authority how much a veterinary surgeon could legally claim as his fee, under the conditions I have stated.

Yours faithfully,
W. E. LITT.

Shrewsbury, April 30th, 1883.

[The scale at present authorized by law for attendance before the examining justices is—

To prosecutors or witnesses, being members of the profession of law or medicine, resident in the city or place where the examination is held, or within two miles of the place, for attending to give *professional evidence*, and not otherwise, a sum not exceeding for each attendance 10s. 6d.

If residing elsewhere 21s. 0d.

And for mileage, not exceeding 3d. per mile each way.

This scale applies, we believe, to all legal cases. But the veterinary surgeon, unless subpoenaed, may make his own terms for giving evidence.]

PROFESSIONAL HUMBUG.

SIR,—If the communication from Mr. Harold Leeney, in the VETERINARY JOURNAL for May, is not overdrawn, a very wretched state of things exists in the veterinary profession; indeed, if the curtain were properly lifted, some of our "grave and reverend seigniors" ought to be in gaol, not to put too fine a point on it. I produce a circular* sent me yesterday by some enterprising printers in London. This "gentleman" (?) evidently is ready, as he says, for any emergency. Modesty, however, is not in him a strong point. Instead of the "College arms," a brazen head would be singularly appropriate.

* P— L—,

M.R.C.V.S., London; & H.F.V.M.A., Edinburgh,

VETERINARY SURGEON,

Begs most respectfully to inform the Nobility, Gentry, Farmers, and others of the surrounding districts, that he is now practising the Veterinary art in all its branches at the above address, and having had over twenty years' experience in the profession, hopes by strict attention to business, combined with moderate charges, to merit a share of your patronage and support.

N.B.—Winner of Prize in 1862, for the best Essay on all difficult cases of Calving, its sequels, and diseases resulting therefrom.

ALL KINDS OF OPERATIONS SKILFULLY AND SCIENTIFICALLY PERFORMED.

Medicines, etc., of all descriptions prepared from the best Drugs, and always ready to meet any case of emergency for Horses, Cattle, Sheep, Dogs, etc.

Horses Examined as to Soundness.

Here is a label of a less pretentious type, but quite unlike what would be expected from a scientific profession.

RESTORATIVE CORDIALS FOR SHEEP AND LAMBS.

MILK ABSORBENTS.

FROM	
A. W. B—, M.R.C.V.S.L.	
VETERINARY INFIRMARY.	

HORSES EXAMINED.

OPERATIONS CAREFULLY PERFORMED.

As to Mr. Leeney's idea of our relinquishing forges, in town it would be simply impossible. We cannot stir far without a smith, that worthy being indispensable in so many of our cases. In improving the veterinary profession we are beginning at the wrong end by so much cant and claptrap. Let every member of a Veterinary Medical Association pledge himself to certain simple rules, as, for instance—

- 1st. To promise to solicit no professional brother's clients.
- 2nd. To give up bribing coachmen, ostlers, and the "horrid set generally" with which our profession is unfortunately surrounded.
- 3rd. To engage no smiths from another practitioner's forge without first consulting brother practitioner.

Remember that life is too short for a lot of professional rivalry and dodging to get practice. The better feeling there is between neighbouring practitioners, the better the public will be served. I should like to see the day come when veterinary surgeons were unanimous on one thing: to stick up for their rights, and to work with a will together.

EAST ANGLIA.

DISGRACEFUL ADVERTISING.

DEAR SIR,—The annexed advertisement appeared in the *Sportsman* of the 28th March. The power of the Council of the R.C.V.S. to remove veterinary surgeons' names from the register for misconduct has not, up to the present time, done much good in protecting the title of M.R.C.V.S., seeing it can be abused with impunity in so many ways.—Yours faithfully,
"VERAX."

A VETERINARY SURGEON (M.R.C.V.S.) desires an ENGAGEMENT as STUD GROOM over any description of Horses. 'Large experience. Excellent testimonials as to character, ability, etc. Apply to V.S., Post Office, Boroughbridge, Yorkshire.

SIR,—I annex an advertisement cut from the *Sportsman* of March 28th, which, perhaps, you may think it advisable to expose in your Journal. Officers have often been reduced to driving cabs, but I think the advertiser in this case might have sunk his profession for his own sake, if not for others. I should like to see veterinary surgeons give up the practice of advertising entirely. It does them no good, and the profession a great deal of harm. The advertisements in the Irish paper, *Sport*, are really too tradesmen-like, and quite the reverse of professional.—Yours, etc.,
INDIGNANS.

NEWSPAPER REPORTING.

SIR,—I enclose you a cutting from the *Scientific American*, which shows the danger of admitting the public so far into one's confidence as to permit them to witness operations. I feel certain that Dr. Liautard would not for a moment countenance such professional advertising, which is alike in bad taste, discreditable to the profession, and a mean advantage for any reporter to take.

"Surgical Operation for Filaria."

"A surgical operation on the eye of a large dray-horse which had been afflicted for some time with a worm in one of its eyes was performed at the American Veterinary College, on the 9th inst., in the presence of some fifty students.

"A reporter on one of our daily papers (*New York Sun*) thus describes the operation :—

"The hind legs of the horse were tied after he had been led to the middle of the room, the floor of which was covered with straw. His fore legs were similarly treated. The hind and fore legs were then drawn together, and the horse fell on his left side. A sponge with a little ether on it was put against his nostrils.

"The Professor of Ophthalmology, assisted by Dr. Liautard and several other veterinary surgeons, stood near the horse's head. When, after a struggle of a few minutes, the horse became unconscious the Professor produced a case of delicate steel instruments. The students held their breath. The Professor knelt near the head of the animal. With a keen-edged knife he made an incision in the opalescent cornea of the right eye, where the little white 'snake' twisted and contorted. The parasite did not accept the invitation to come out. The incision was enlarged by the use of a pair of curved scissors ; but the snake preferred its native element to the untried world on which the door was opened to it.

"Meantime a half-dozen students were pressing the body of the horse with their hands and knees, in undulatory unison, to keep up respiration.

"The Professor next resorted to a little instrument called Bowman's spoon. He stroked the cornea of the eye until the head of the parasite peered out. A pair of minute forceps closed upon its neck, and out came the snake, and a moment later was squirming in innumerable curves on a plate.

"The students crowded around the plate. They saw a thin white worm, about two and a half inches long, 'of wire-like hardness, and,' according to the Professor, 'with a well-marked head.' Dr. Liautard put it in a bottle.

"Then a large force of students set to work to assist in restoring the horse by artificial respiration. They worked industriously for an hour. When the undulatory pressure on the body of the horse failed to arouse him, an intra-venous injection of ammonia was tried. It did not work. The horse was then bled. He did not revive.

"'He's dead,' Dr. Liautard said. 'Evidently there was something the matter with his heart. We will hold a *post-mortem*.'"

Yours truly,

FILARIA.

THE TREATMENT OF PARTURIENT APOPLEXY.

DEAR SIR,—I have adopted the following treatment in a large number of cases of Milk Fever, and have found it most satisfactory.

When fortunate enough to see the animal in the first stage of the complaint, bleed freely and give Magnes. Sulphatis sixteen ounces, and Oleum Crotonis in twenty-five drops, with aromatics; I have cold water constantly poured upon the head, and order the cow to be frequently milked. I also ascertain whether the urinary bladder has acted naturally; if not, I use the catheter.

In the second stage, I blister severely at back of the poll, pass the catheter twice daily, and give Oleum Terebinth two ounces, and Spts. Ammon. Comp. one ounce, very carefully, every two hours.

When we consider that these animals are really converted into mere milking machines, and that the supply of blood which was required for the foetus from the mother, is suddenly rendered unnecessary by the birth of the calf, it is not difficult to understand that it is rational treatment to administer a strong purgative prior to calving, and I have found the above cathartic drench very useful.—I am, sir, yours respectfully,

ROBERT J. DAWSON, M.R.C.V.S.

25, Telford Road, Walthamstow, *May 19th.*

A CASE FOR CHARITY.

DEAR SIR,—Would you allow me to trespass on the space for your June issue of the VETERINARY JOURNAL, regarding the case for charity mentioned, and so kindly brought before the profession in your last month's Journal, by Professor Walley, of the Royal Veterinary College, Edinburgh. The case is that of the late Robert Hall, M.R.C.V.S., late of Stockton-on-Tees, Durham, and the appeal is for the widow and five children, who were on April 30th still in the workhouse at Stockton-on-Tees. The case of the late Robert Hall is a very sad one, and to be candid with the profession, I am afraid his troubles were largely brought about by departing from a strictly sober line of life, though this may have been due to anxiety and worry brought about by an exhausting Chancery suit in which he had been long engaged. I knew little of the doings of my departed college friend until last October, when I saw from a north-country paper that he was in trouble. I then sent him a little assistance. Through this circumstance, Mrs. Hall wrote me from the workhouse, informing me of her husband's death and her destitute position, asking my assistance and advice in obtaining a situation for herself, and of getting her children into some charitable institution. Finding from Mrs. Hall that her late husband had belonged during his life to none of those numerous grand friendly bodies that many of us, no doubt, do belong to, and not being able to render her any assistance in some of those, I advised her to write to Professor Walley, and ask him to place her case before the veterinary profession. Therefore, sir, I beg to supplement the kindness of Professor Walley, by appealing especially to those members of the profession who will remember their fellow-student Robert Hall, at Clyde Street, in the sessions 1862, '3, and '4; they will remember him—a sober, gentlemanly, industrious student, and I can only hope that Professor Walley's appeal to the general body will be kindly received, and that some help may be rendered to the widow and five children. I do not know the age of the eldest, but should think she is about nine years old. I see from Mrs. Hall's last letter to me on April 30th, that the eldest has been elected to the "Bennburgh Castle School" for girls in Northumberland, and Sir Joseph

Whitwell Pease would have nominated one of the boys to the Haverstock Hill School, but one of the rules of that institution, Sir Joseph W. Pease finds, excludes the boy, through his being in the workhouse.

I am, dear sir,

26, Beaumont Street,
Portland Place,
May 20th, 1883.

Your obedient servant,

THOMAS BARKER, M.R.C.V.S.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from J. T. Duncan, Toronto; W. O. Williams, Edinburgh; Arnold and Sons, London; J. McCall, Glasgow; W. E. Litt, Shrewsbury; "Verax"; R. R. Cole, Hinckley; J. B. Martin, Rochester; "East Anglia"; W. Caudwell, Worksop; C. Sheather, London; A. Broad, London; W. Whittle, Worsley; "Filaria"; R. J. Dawson, Walthamstow; T. Barker, London; A. W. Hill, London.

BOOKS AND PAMPHLETS: *E. Cuyet*, Les Allures du Cheval; *P. Adam*, Vorträge über Pferdekunde; *W. Osler, M.D.*, On Canadian Fresh-water Polyzoa; On Certain Parasites in the Blood of the Frog; *L. Schwab*, Katechismus der Hufbeschlagkunst; Transactions of the Epidemiological Society of London; Report of the Minister of Agriculture for the Dominion of Canada.

JOURNALS, ETC: *Der Thierarzt*; *Stock-Keeper*; *Der Hufschmied*; *Annales de Méd. Vétérinaire*; *Wochenschrift für Thierheilkunde und Viehzucht*; *Revue Vétérinaire*; *Recueil de Méd. Vétérinaire*; *Live Stock Journal*; *Archives Vétérinaire*; *Lancet*; *American Live Stock Journal*; *Echo Vétérinaire*; *Journal of the Royal Agricultural Society*; *Journal de Méd. Vétérinaire et de Zootechnie*; *Mark Lane Express*; *British Medical Journal*; *Bulletin et Mémoires de la Soc. cent. de Méd. Vétérinaire*; *La Clinica Veterinaria*; *American Veterinary Review*; *Journal of the Society of Kings County*; *Edinburgh Medical Journal*; *Medical Press and Circular*; *Journal of the Society of Arts*.

NEWSPAPERS: *Irish Times*; *Grantham Journal*; *Glasgow Herald*; *Scotsman*; *Edinburgh Courant*; *Montreal Gazette*; *American Cultivator*; *Madras Advertiser*; *Berwick Warder*; *Berwickshire News*; *The Turf, Field, and Farm*; *Madras Times*; *Boston Saturday Evening Gazette*; *Rochdale Times*; *Leeds Mercury*; *Daily Chronicle*; *Edinburgh Daily Review*; *Bradford Times*.

TO CORRESPONDENTS.

No notice can be taken of anonymous communications. Whatever is intended for insertion must be authenticated by the name and address of the writer, not necessarily for publication, but as a guarantee of good faith. We cannot undertake to return rejected communications.



